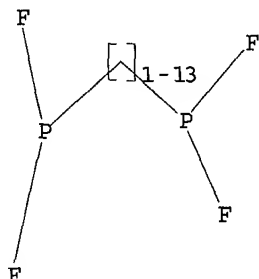


| L Number | Hits | Search Text | DB | Time stamp |
|----------|------|---------------------------------------|--------------------|------------------|
| 1 | 39 | 568/8.ccls. and (fluoro or fluoride) | USPAT; US-PGPUB | 2003/12/15 13:03 |
| 2 | 36 | 568/16.ccls. and (fluoro or fluoride) | USPAT; US-PGPUB | 2003/12/15 13:03 |

=>
Uploading 10084681.str

L1 STRUCTURE UPLOADED

=> d
L1 HAS NO ANSWERS
L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 10:35:29 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 52 TO ITERATE

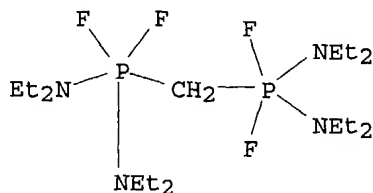
100.0% PROCESSED 52 ITERATIONS 5 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**
PROJECTED ITERATIONS: 608 TO 1472
PROJECTED ANSWERS: 5 TO 234

L2 5 SEA SSS SAM L1

=> d scan

L2 5 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
IN Phosphoranediamine, 1,1'-methylenebis[N,N,N',N'-tetraethyl-1,1-difluoro-
 (9CI)
MF C17 H42 F4 N4 P2



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> s l1 full
FULL SEARCH INITIATED 10:35:40 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 949 TO ITERATE

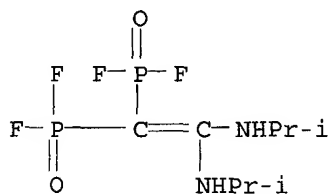
100.0% PROCESSED 949 ITERATIONS
SEARCH TIME: 00.00.01

71 ANSWERS

L3 71 SEA SSS FUL L1

=> d scan

L3 71 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
IN Phosphonic difluoride, [bis[(1-methylethyl)amino]ethenylidene]bis- (9CI)
MF C8 H16 F4 N2 O2 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> s l3 not n/els

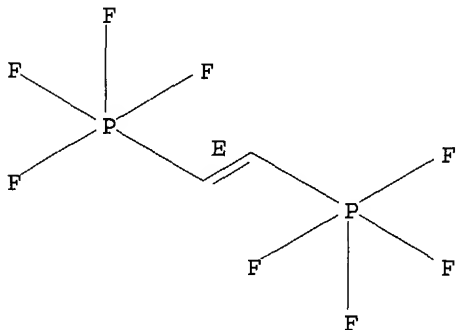
15752069 N/ELS

L4 60 L3 NOT N/ELS

=> d scan

L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
IN Phosphorane, 1,2-ethenediylbis[tetrafluoro-, (E)- (9CI)
MF C2 H2 F8 P2

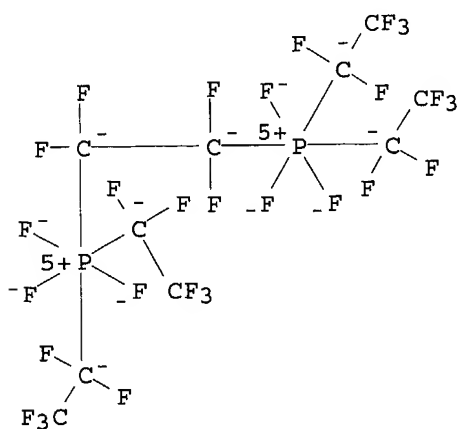
Double bond geometry as shown.



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

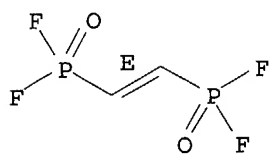
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
IN Phosphate(2-), hexafluorotetrakis(pentafluoroethyl) [.mu.-(1,1,2,2-tetrafluoro-1,2-ethanediy)]di- (9CI)
MF C10 F30 P2

CI CCS, COM



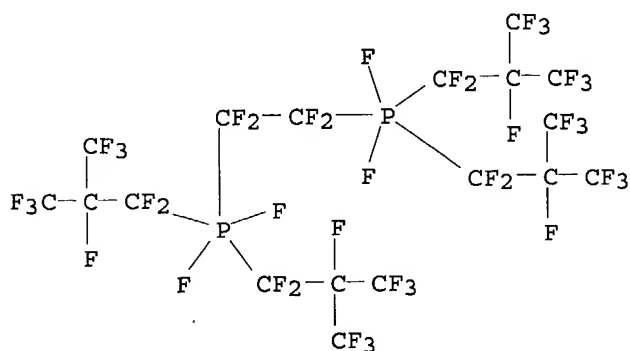
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonic difluoride, 1,2-ethenediylbis-, (E)- (9CI)
 MF C2 H2 F4 O2 P2

Double bond geometry as shown.

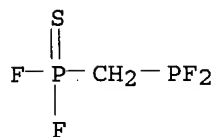


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethenediyl)bis[difluorobis[1,1,2,3,3,3-hexafluoro-2-(trifluoromethyl)propyl]- (9CI)
 MF C18 F44 P2

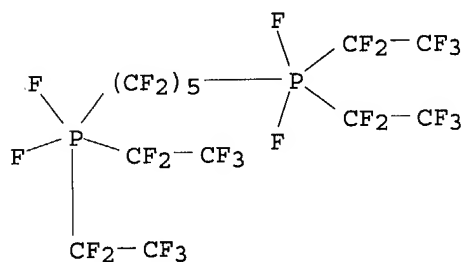


L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonothioic difluoride, [(difluorophosphino)methyl]- (9CI)
 MF C H2 F4 P2 S

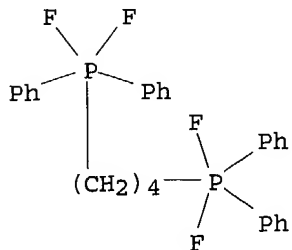


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

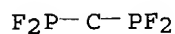
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, (1,1,2,2,3,3,4,4,5,5-decafluoro-1,5-pentenediyl)bis[difluorobis(pentafluoroethyl)-, stereoisomer (9CI)
 MF C13 F34 P2

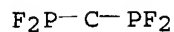


L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, 1,4-butanediylbis[difluorodiphenyl]- (9CI)
 MF C28 H28 F4 P2

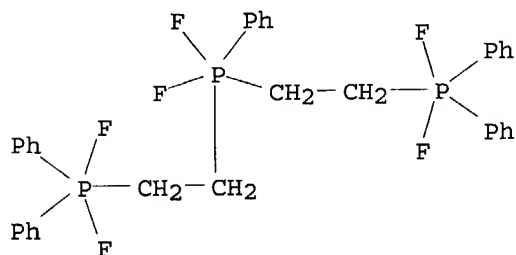


L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Methylene, bis(difluorophosphino)- (9CI)
 MF C F4 P2

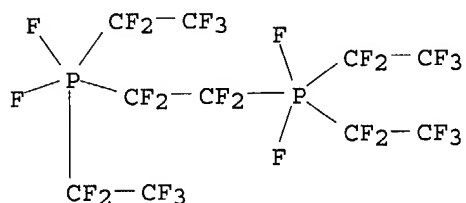




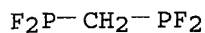
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, bis[2-(difluorodiphenylphosphoranyl)ethyl]difluorophenyl-
 (9CI)
 MF C34 H33 F6 P3



L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[difluorobis(pentafluoroethyl)-, stereoisomer (9CI)
 MF C10 F28 P2



L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, methylenebis- (9CI)
 MF C H2 F4 P2

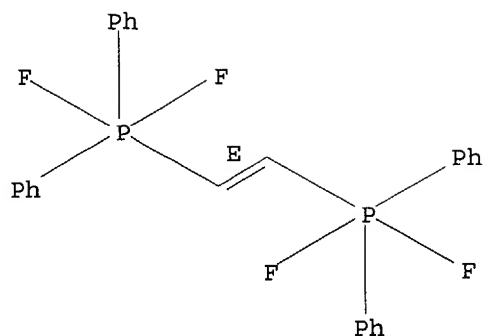


****PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT****

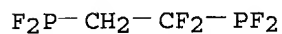
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, 1,2-ethenediylbis[difluorodiphenyl-, (E)- (9CI)
 MF C26 H22 F4 P2

Double bond geometry as shown.

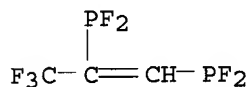


L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, (1,1-difluoro-1,2-ethenediyl)bis- (9CI)
 MF C2 H2 F6 P2



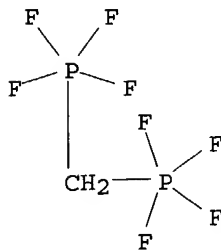
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, [1-(trifluoromethyl)-1,2-ethenediyl]bis- (9CI)
 MF C3 H F7 P2

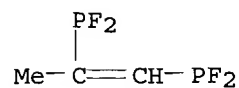


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, methylenebis[tetrafluoro- (9CI)
 MF C H2 F8 P2

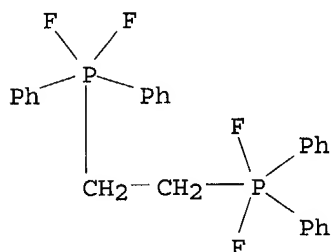


L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, (1-methyl-1,2-ethenediyl)bis- (9CI)
 MF C3 H4 F4 P2



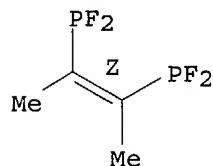
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphorane, 1,2-ethanediylbis[difluorodiphenyl- (9CI)
 MF C26 H24 F4 P2



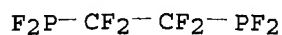
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, (1,2-dimethyl-1,2-ethenediyl)bis-, (Z)- (9CI)
 MF C4 H6 F4 P2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

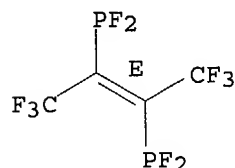
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis- (9CI)
 MF C2 F8 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

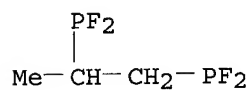
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, [1,2-bis(trifluoromethyl)-1,2-ethenediyl]bis-,
 (E) - (9CI)
 MF C4 F10 P2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

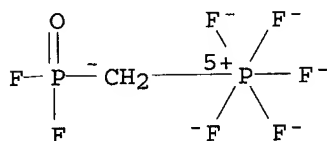
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonous difluoride, (1-methyl-1,2-ethanediyl)bis- (9CI)
 MF C3 H6 F4 P2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

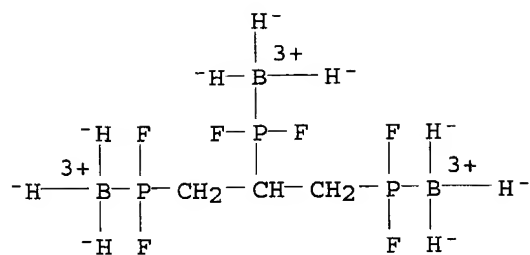
L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphate(1-), [(difluorophosphinyl)methyl]pentafluoro-, potassium,
 (OC-6-21) - (9CI)
 MF C H2 F7 O P2 . K
 CI CCS



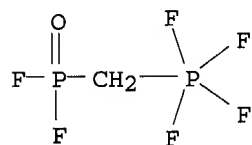
● K⁺

L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Boron, nonahydro[.mu.3-[1,2,3-propanetriyltris[phosphonous
 difluoride]-P:P':P'']]tri- (9CI)

MF C3 H14 B3 F6 P3
 CI CCS



L4 60 ANSWERS REGISTRY COPYRIGHT 2003 ACS on STN
 IN Phosphonic difluoride, [(tetrafluorophosphoranyl)methyl]- (9CI)
 MF C H2 F6 O P2



=> s 110

L11 34 L10

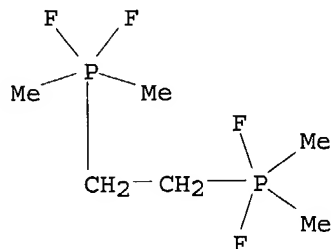
=> d hitstr 34

L11 ANSWER 34 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

IT 1682-01-5, Phosphorane, ethylenebis[difluorodimethyl-
(prepn. and properties of)

RN 1682-01-5 CAPLUS

CN Phosphorane, ethylenebis[difluorodimethyl- (7CI, 8CI) (CA INDEX NAME)



=> d ibib abs hitstr 1-10

L11 ANSWER 1 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:671919 CAPLUS

DOCUMENT NUMBER: 137:201439

TITLE: Electrochemical preparation of .alpha.,.omega.-
bis(fluoroalkyl/fluorophosphorano)alkane

INVENTOR(S): Schmidt, Michael; Kuehner, Andreas; Ignatyev, Nikolai;
Sartori, Peter

PATENT ASSIGNEE(S): Merck Patent G.m.b.H., Germany

SOURCE: Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------|----------|------------------|----------|
| EP 1236734 | A1 | 20020904 | EP 2002-2734 | 20020207 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| DE 10109756 | A1 | 20020905 | DE 2001-10109756 | 20010228 |
| JP 2002255984 | A2 | 20020911 | JP 2001-297078 | 20010927 |
| BR 2002000520 | A | 20021001 | BR 2002-520 | 20020225 |
| CN 1373133 | A | 20021009 | CN 2002-105291 | 20020226 |
| US 2002121446 | A1 | 20020905 | US 2002-84681 | 20020228 |

PRIORITY APPLN. INFO.: DE 2001-10109756 A 20010228

OTHER SOURCE(S): CASREACT 137:201439; MARPAT 137:201439

AB The electrochem. prepn. of title compds. is described. Thus, electrochem.
fluorination of Et2PCH2CH2PET2 with HF gave 23% (C2F5)2PF2CF2CF2F2P(C2F5)2
along-with tris(pentafluoroethyl)difluorophosphorane.

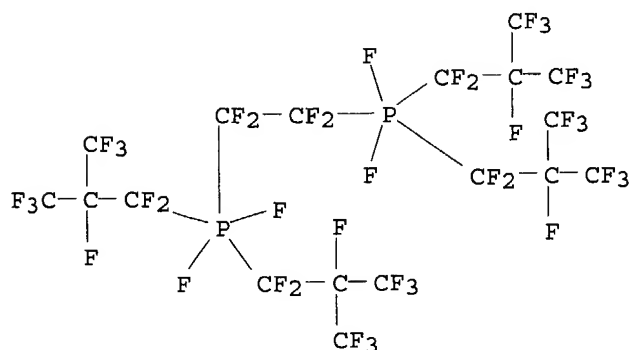
IT 454421-26-2P 454468-19-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

RN 454421-26-2 CAPLUS

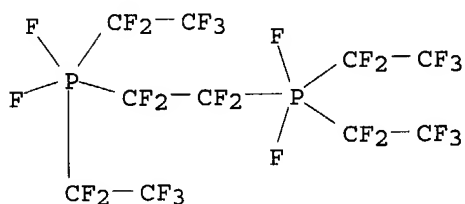
CN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[difluorobis[1,1,2,3,3

,3-hexafluoro-2-(trifluoromethyl)propyl]- (9CI) (CA INDEX NAME)



RN 454468-19-0 CAPLUS

CN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[difluorobis(pentafluoroethyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 2 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:671916 CAPLUS

DOCUMENT NUMBER: 137:217076

TITLE: Preparation of fluoroalkylphosphate salts as electrolytes for primary and secondary batteries

INVENTOR(S): Schmidt, Michael; Kuehner, Andreas; Ignatyev, Nikolai; Satori, Peter

PATENT ASSIGNEE(S): Merck Patent G.m.b.H., Germany

SOURCE: Eur. Pat. Appl., 26 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|------|----------|--------------------|----------|
| EP 1236732 | A1 | 20020904 | EP 2002-1914 | 20020131 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| DE 10109032 | A1 | 20020905 | DE 2001-10109032 | 20010224 |
| JP 2003034692 | A2 | 20030207 | JP 2001-301156 | 20010928 |
| TW 527740 | B | 20030411 | TW 2001-90133110 | 20011231 |
| CN 1371911 | A | 20021002 | CN 2002-105228 | 20020221 |
| BR 2002000465 | A | 20021029 | BR 2002-465 | 20020221 |
| US 2002122979 | A1 | 20020905 | US 2002-80515 | 20020225 |
| PRIORITY APPLN. INFO.: | | | DE 2001-10109032 A | 20010224 |

OTHER SOURCE(S): CASREACT 137:217076; MARPAT 137:217076

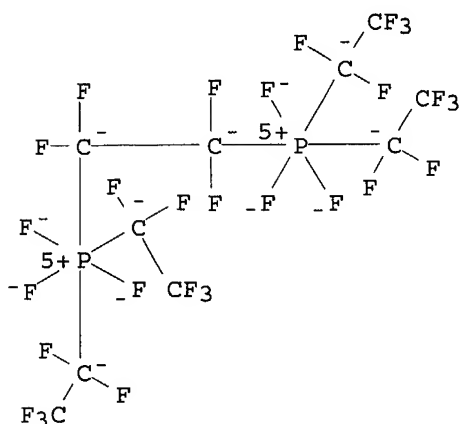
AB The prepn. of title compds., useful as electrolytes for primary and secondary batteries, is described. Thus, reaction of LiF with perfluoro-1,2-bis(diethyldifluorophosphorano)ethane in a mixt. of ethylene carbonate/dimethyl carbonate/diethyl carbonate (solvent mixt.) gave the title compd., $2\text{Li}+[(\text{C}_2\text{F}_5)_2\text{PF}_3(\text{CF}_2)_2\text{PF}_3(\text{C}_2\text{F}_5)]^{2-}$, as a mixt. of stereoisomers. The oxidn. stability of the compd. prepd. is given.

IT 454458-13-0P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(oxidn. stability; prepn. of fluoroalkylphosphate salts as electrolytes for primary and secondary batteries)

RN 454458-13-0 CAPLUS

CN Phosphate(2-), hexafluorotetrakis(pentafluoroethyl) [mu.-(1,1,2,2-tetrafluoro-1,2-ethanediyl)]di-, dilithium (9CI) (CA INDEX NAME)



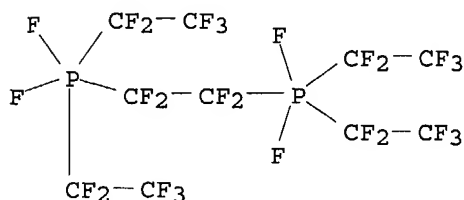
● 2 Li⁺

IT 454468-19-0

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with lithium fluoride)

RN 454468-19-0 CAPLUS

CN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[difluorobis(pentafluoroethyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

2

THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 3 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2001:670572 CAPLUS

DOCUMENT NUMBER: 136:6055
 TITLE: Interaction of some methylenediphosphines with hexafluoroacetone and hexafluorothioacetone dimer
 AUTHOR(S): Shevchenko, Igor V.; Mikolenko, Rostislav N.; Lork, Enno; Roschenthaler, Gerd-Volker
 CORPORATE SOURCE: Institute of Bioorganic Chemistry, Kiev, 02094, Ukraine
 SOURCE: European Journal of Inorganic Chemistry (2001), (9), 2377-2383
 CODEN: EJICFO; ISSN: 1434-1948
 PUBLISHER: Wiley-VCH Verlag GmbH
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 136:6055

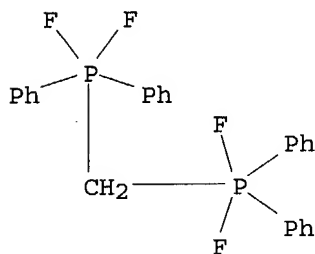
AB The reactions of methylenediphosphines with hexafluoroacetone (HFA) and hexafluorothioacetone dimer (HFTA) gave the resp. carbodiphosphoranes, e.g. (CF₃)₂CHOPPh₂:C:PPh₂OCH(CF₃)₂ (6), (CF₃)₂CHSP(NEt₂)P:C:P(NEt₂)₂SCH(CF₃)₂ (15), and (CF₃)₂CHSPPh₂:C:PPh₂SCH(CF₃)₂ (19). The carbodiphosphoranes 6 and 19, with Ph groups at phosphorus, were able to react further with C:O or C:S functions. Compd. 6 added one equiv. of HFA across one of the ylidic P:C bonds to give compd. phosphoranylideneoxaphosphetane (9), a stable intermediate of the Wittig reaction. The addn. of HFTA to 19 gave, unexpectedly, the isomeric compd., (CF₃)₂CHSPPh₂:C(PPh₂)SCH(CF₃)₂ (21). The mol. structures of 9, 15, and 21 were confirmed by x-ray investigations.

IT 26040-41-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)

RN 26040-41-5 CAPLUS

CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI)] (CA INDEX NAME)



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 4 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:200705 CAPLUS

DOCUMENT NUMBER: 133:4720

TITLE: Solution phase direct fluorination of bridged alkyl di- and triphosphines

AUTHOR(S): Kampa, J. J.; Nail, J. W.; Lagow, R. J.

CORPORATE SOURCE: Department of Chemistry and Material Science, University of Texas at Austin, Austin, TX, USA

SOURCE: Journal of Fluorine Chemistry (2000), 102(1-2), 333-335

CODEN: JFLCAR; ISSN: 0022-1139

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 133:4720

AB Perfluorinated phosphoranes with two P(V) centers, e.g., [Rf₂PF₂CF₂]₂ and

[CF₃CF₂PF₂CF₂CF₂]₂X (R_f = CF₃, CF₃CF₂, X = CF₂, O) were prepd. via elemental fluorination in soln. Oxidn. sensitive a,w-bis(dialkylphosphino)alkanes are converted into the corresponding difluorophosphoranes. The F-19 and P-31 NMR are discussed. Addnl. characterization is provided by high and low resolu. mass spectrometry.

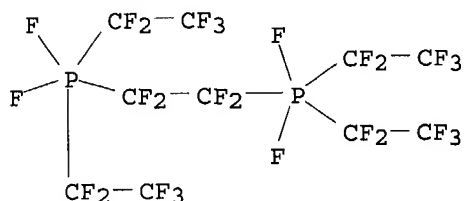
IT 166982-31-6P 270921-56-7P 270921-57-8P

270921-59-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

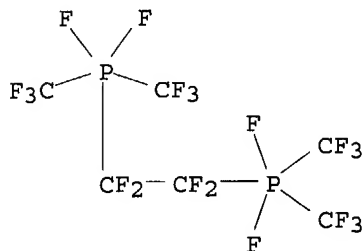
RN 166982-31-6 CAPLUS

CN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[difluorobis(pentafluoroethyl)-, stereoisomer (9CI) (CA INDEX NAME)



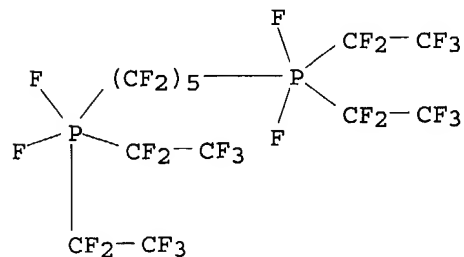
RN 270921-56-7 CAPLUS

CN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[difluorobis(trifluoromethyl)-, stereoisomer (9CI) (CA INDEX NAME)



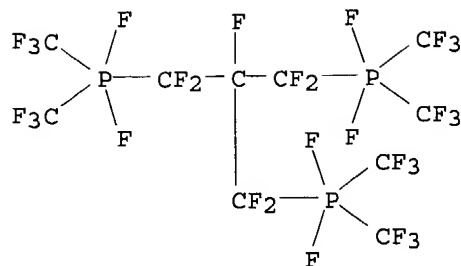
RN 270921-57-8 CAPLUS

CN Phosphorane, (1,1,2,2,3,3,4,4,5,5-decafluoro-1,5-pentanediy)bis[difluorobis(pentafluoroethyl)-, stereoisomer (9CI) (CA INDEX NAME)



RN 270921-59-0 CAPLUS

CN Phosphorane, [2-[[difluorobis(trifluoromethyl)phosphoranyl]difluoromethyl]-1,1,2,3,3-pentafluoro-1,3-propanediyl]bis[difluorobis(trifluoromethyl)-, stereoisomer (9CI) (CA INDEX NAME)



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 5 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2000:76147 CAPLUS
 DOCUMENT NUMBER: 132:194426
 TITLE: On the electronic properties of substituted phosphinylcarbenes
 AUTHOR(S): Schoeller, Wolfgang W.
 CORPORATE SOURCE: Fak. Chem., Univ. Bielefeld, Bielefeld, D-33501, Germany
 SOURCE: European Journal of Inorganic Chemistry (2000), (2), 369-374
 CODEN: EJICFO; ISSN: 1434-1948
 PUBLISHER: Wiley-VCH Verlag GmbH
 DOCUMENT TYPE: Journal
 LANGUAGE: English

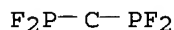
AB A phosphinyl group exerts much less .pi.-conjugation properties than an amino group. On this basis, corresponding carbene structures exhibit much smaller singlet-triplet energy sepns. Of the various structures studied quantum-chem., the largest singlet-triplet energy sepns. are predicted for cyclic diphosphinylcarbenes, in which the two functional groups are incorporated into a ring system and the P atoms are substituted by phosphoraniminato groups. In this case, the singlet-triplet energy sepns. become essentially larger than for the Bertrand-type (push-pull) carbenes.

IT 260049-46-5

RL: PRP (Properties)
 (singlet-triplet sepn. energy, bond length, and bond angles of phosphinylcarbenes and related species by quantum.-chem. calcns.)

RN 260049-46-5 CAPLUS

CN Methylene, bis(difluorophosphino)- (9CI) (CA INDEX NAME)



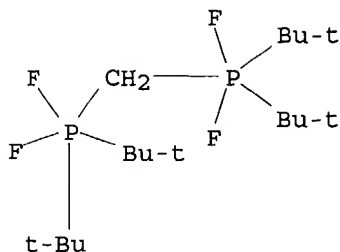
REFERENCE COUNT: 75 THERE ARE 75 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L11 ANSWER 6 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1996:30667 CAPLUS
 DOCUMENT NUMBER: 124:261180
 TITLE: New observations concerning the reactivity of triorganotin fluorides
 AUTHOR(S): Lambertsen, Thomas; Schmutzler, Reinhard
 CORPORATE SOURCE: Institut Anorganische Analytische Chemie, Technischen Universitaet, Braunschweig, D-38023, Germany
 SOURCE: Zeitschrift fuer Naturforschung, B: Chemical Sciences (1995), 50(11), 1583-6

CODEN: ZNBSEN; ISSN: 0932-0776
 PUBLISHER: Verlag der Zeitschrift fuer Naturforschung
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 124:261180
 AB Me₃SnF (I) reacted with many hydrolyzable chlorides to give Me₃SnCl and the corresponding fluoride. The formation of PhPF₂, (ClCH₂)MeSiF₂, F₂PCH₂PF₂ and PF₅ is described. The reaction of Ph₃SnF or Bu₃SnF with CaBr₂ yielded pure triorganotin bromides. Compd. I acted either as a fluoride acceptor or, towards PF₅, as a fluoride donor.
 IT **60839-30-7P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (reactivity of triorganotin fluorides)
 RN 60839-30-7 CAPLUS
 CN Phosphonous difluoride, methylenebis- (9CI) (CA INDEX NAME)

F₂P-CH₂-PF₂

L11 ANSWER 7 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1995:822016 CAPLUS
 DOCUMENT NUMBER: 124:56060
 TITLE: Pentacoordinated molecules. 103. Synthesis and molecular structures of fluorophosphoranes, R₃PF₂, isoelectronic with anionic fluorosilicates
 AUTHOR(S): Holmes, Robert R.; Holmes, Joan M.; Day, Roberta O.; Swamy, K. C. Kumara; Chandrasekhar, V.
 CORPORATE SOURCE: Dep. of Chemistry, Univ. of Massachusetts, Amherst, MA, 01003-4510, USA
 SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (1995), 103(1-4), 153-69
 CODEN: PSSLEC; ISSN: 1042-6507
 PUBLISHER: Gordon & Breach
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The new difluorophosphoranes Ph(o-Tol)2PF₂ (1), Mes3PF₂ (2), Ph(1-Np)2PF₂ (3), (o-Tol)3PF₂, (p-Tol)3PF₂, Ph(t-Bu)2PF₂, and (Ph2PF₂)2CH₂ contg. bulky substituents were prepd. by the fluorination reaction of precursor organophosphines with dimethylaminosulfur trifluoride. They were characterized by ¹H, ³¹P, and ¹⁹F NMR spectra. The mol. structures of 1-3 revealed trigonal bipyramidal geometries. Comparison of the structural data with that of isoelectronic anionic fluorosilicates along with the NMR data suggests the operation of a steric effect that increases bond lengths in the difluorophosphoranes 1-3 and in related anionic silicates. The data are discussed relative to enhanced reactivity obsd. for anionic silicates. 1 Crystallizes in the monoclinic space group C2/c with a 11.819(3), b 10.163(2), c 13.992(3) .ANG., .beta. 99.14(2).degree., and Z = 4. 2 Crystallizes in the monoclinic space group C2/c with a 10.531(2), b 12.667(2), c 18.110(4) .ANG., .beta. 104.21(2).degree., and Z = 4. 3 Crystd. in the monoclinic space group P21/c with a 15.868(2), b 7.434(1), c 18.213(4) .ANG., .beta. 112.34(2), and Z = 4. The final conventional unweighted residuals are 0.063 (1), 0.060 (2) and 0.040 (3).
 IT **171857-49-1P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of difluorophosphoranes)
 RN 171857-49-1 CAPLUS
 CN Phosphorane, methylenebis[bis(1,1-dimethylethyl)difluoro-, stereoisomer (9CI) (CA INDEX NAME)



L11 ANSWER 8 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1995:653663 CAPLUS

DOCUMENT NUMBER: 123:144016

TITLE: The synthesis of tris(perfluoroalkyl)phosphanes

AUTHOR(S): Kampa, Joel J.; Nail, John W.; Lagow, Richard J.

CORPORATE SOURCE: Dep. Chemistry, Univ. Texas Austin, Austin, TX, 78712, USA

SOURCE: Angewandte Chemie, International Edition in English (1995), 34(11), 1241-44

CODEN: ACIEAY; ISSN: 0570-0833

PUBLISHER: VCH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Trialkylphosphines have been subjected to direct elemental fluorination in Freon 11 and 113 (1:1) in a soln. reactor to produce difluorotris(perfluoroalkyl)phosphoranes, e.g., $F_2P(CF_2CF_3)_3$, in good yields. Redn. of the above difluorotris(perfluoroalkyl)phosphoranes by selective removal of the two axial fluorines atoms bound to the phosphorus using $P(SiMe_3)_3$ as reducing reagent gave previously inaccessible (perfluoroalkyl)phosphines, e.g., $P(CF_2CF_3)_3$.

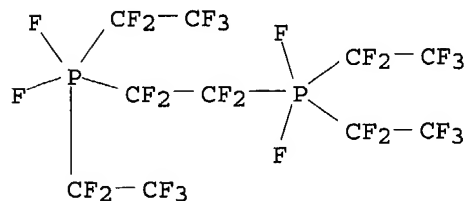
IT 166982-31-6P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(synthesis of tris(perfluoroalkyl)phosphines from selective redn. of difluorotris(perfluoroalkyl)phosphoranes, prepd. by fluorination of trialkylphosphines)

RN 166982-31-6 CAPLUS

CN Phosphorane, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis[difluorobis(pentafluoroethyl)-, stereoisomer (9CI) (CA INDEX NAME)



L11 ANSWER 9 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1992:571556 CAPLUS

DOCUMENT NUMBER: 117:171556

TITLE: Mono- and bis(difluorophosphoranyl)ethylene,

n-hexylidene fluorophosphorane, and a

2,4-di-n-pentyl-.lambda.5,3.lambda.5-diphosphete

AUTHOR(S): Fluck, Ekkehard; Kuhm, Peter; Heckmann, Gernot

CORPORATE SOURCE: Gmelin-Inst. Anorg. Chem., Frankfurt/Main, Germany

SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie

(1992), 613, 31-5
CODEN: ZAACAB; ISSN: 0044-2313

DOCUMENT TYPE: Journal
LANGUAGE: German
OTHER SOURCE(S): CASREACT 117:171556

AB Bis(diethylamino)phosphinyethylene, 1, is converted by SF₄ into bis(diethylamino)difluorophosphoranylene, 2. Analogously trans-1,2-bis(diphenylphosphanyl)ethylene is converted into trans-1,2-bis(difluorodiphenylphosphoranyl)ethylene, 4. 2 Reacts with BuLi to give hexylidenebis(diethylamino)fluorophosphorane, 5. With more BuLi, the main product hexylidenebis(diethylamino)butylphosphorane, 7, and the byproduct 2,4-dipentyl-1,1,3,3-tetrakis(diethylamino)-1.λ.5,3.λ.5-diphosphate, 8, are formed. With tert-butyllithium, 2 yields 3,3-dimethylbutylidenebis(diethylamino)fluorophosphorane, 6. All new compds. 1, 2, 4-8 are characterized by their NMR and IR spectra.

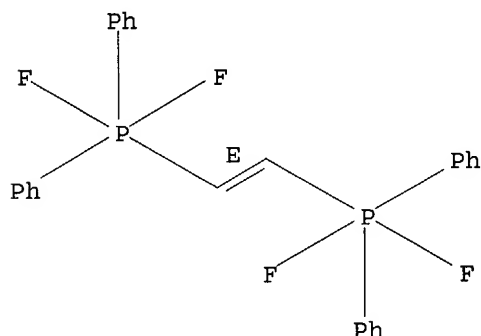
IT 143674-49-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, with BuLi)

RN 143674-49-1 CAPLUS

CN Phosphorane, 1,2-ethenediylbis[difluorodiphenyl-, (E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



L11 ANSWER 10 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:504761 CAPLUS

DOCUMENT NUMBER: 115:104761

TITLE: Carbonyl difluoride: reactions with metal-phosphine complexes

AUTHOR(S): Gupta, O. D.; Kirchmeier, Robert L.; Shreeve, Jean'ne M.

CORPORATE SOURCE: Dep. Chem., Univ. Idaho, Moscow, ID, 83843, USA

SOURCE: Journal of Fluorine Chemistry (1991), 52(1), 1-6

CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

AB [NiLn]X₂ [L = Ph₂P(CH₂)_xPPh₂; x = 1, 2, 3 (dpm, dpe, and dpp, resp.); X = Cl, Br, I; n = 1, 2] were allowed to react with COF₂ under homogeneous and heterogeneous conditions at ambient temp. or above. The dpm ligands of [Ni(dpm)]X₂ and [Ni(dpm)₂]X₂ were oxidatively fluorinated to the phosphorane, but [Ni(dpe)]X₂ and [Ni(dpp)]X₂ did not react with COF₂ under any conditions tried. [Ni(dpe)₂]X₂ and [Ni(dpp)₂]X₂ reacted with COF₂ at 25.degree. in CH₂Cl₂ to form fluorinated phosphoranes and [Ni(dpe)]X₂ and [Ni(dpp)]X₂, resp. COF₂ reacted with [Ni(dpp)₂] and [Ni(dpe)₂] to give the stoichiometric amts. of oxidatively fluorinated phosphoranes.

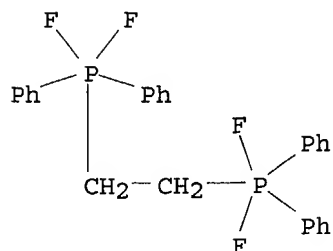
IT 55339-52-1P 63883-61-4P

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, from nickel bis(diphenylphosphino)alkane complexes and carbonyl difluoride)

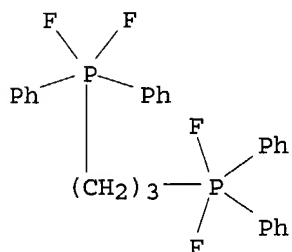
RN 55339-52-1 CAPLUS

CN Phosphorane, 1,2-ethanediylbis[difluorodiphenyl- (9CI) (CA INDEX NAME)



RN 63883-61-4 CAPLUS

CN Phosphorane, 1,3-propanediylbis[difluorodiphenyl- (9CI) (CA INDEX NAME)



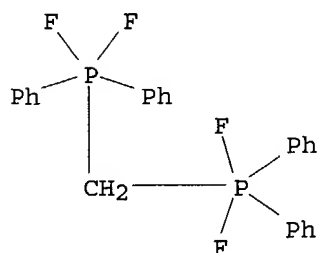
IT 26040-41-5P

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, from nickel bis(diphenylphosphino)methane complex halide salts and carbonyl fluoride)

RN 26040-41-5 CAPLUS

CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI) (CA INDEX NAME)



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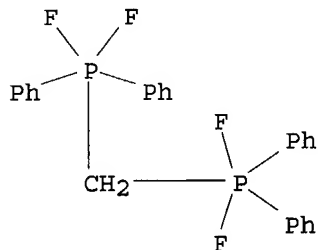
L11 ANSWER 11 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1990:90224 CAPLUS

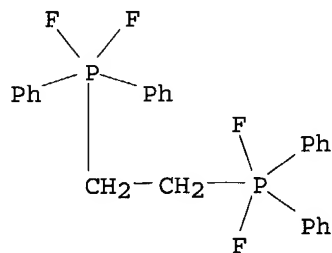
DOCUMENT NUMBER: 112:90224

TITLE: Trifluoroamine oxide: reactions with phosphorus compounds and selected elements

AUTHOR(S): Gupta, O. D.; Kirchmeier, Robert L.; Shreeve, Jeanne M.
 CORPORATE SOURCE: Dep. Chem., Univ. Idaho, Moscow, ID, 83843, USA
 SOURCE: Inorganic Chemistry (1990), 29(3), 573-4
 CODEN: INOCAJ; ISSN: 0020-1669
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB NF3O was reacted with main group elements and Zn, Cd and Pb at 200.degree. for 24 h to form their fluorides in high purity. Oxidative fluorination of phosphines and phosphites and abstraction of H from the P-H bond in secondary phosphates have been achieved at 110.degree.. Results are compared with COF2 and SOF2 as fluorinating agents.
 IT 26040-41-5P 55339-52-1P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, by fluorination with trifluoroamine oxide)
 RN 26040-41-5 CAPLUS
 CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI) (CA INDEX NAME)



RN 55339-52-1 CAPLUS
 CN Phosphorane, 1,2-ethanediylbis[difluorodiphenyl- (9CI) (CA INDEX NAME)



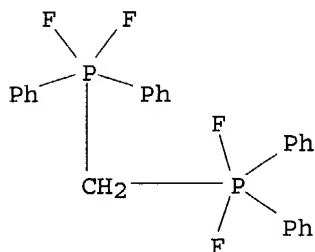
L11 ANSWER 12 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1990:35972 CAPLUS
 DOCUMENT NUMBER: 112:35972
 TITLE: Fluoro-substituted and other new carbodiphosphoranes
 AUTHOR(S): Fluck, E.; Neumueller, B.; Braun, R.; Heckmann, G.; Simon, A.; Borrmann, H.
 CORPORATE SOURCE: Gmelin-Inst. Anorg. Chem. Grenzgebiete, Max-Planck-Ges., Frankfurt/Main, D-6000/90, Fed. Rep. Ger.
 SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie (1988), 567, 23-38
 CODEN: ZAACAB; ISSN: 0044-2313
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 OTHER SOURCE(S): CASREACT 112:35972

AB Reaction of phosphorus ylide, $\text{H}_2\text{C}:\text{P}(\text{NMe}_2)_2$, with Li in DME gave 7.1% $(\text{Me}_2\text{N})_3\text{P}:\text{C}:\text{P}(\text{NMe}_2)_2\text{Me}$ (I) along with $[\text{HC}:\text{P}(\text{NMe}_2)_2]_2$ identified by ^{31}P NMR. Dehydrofluorination of $\text{R}_2\text{F}_2\text{PCH}_2\text{PF}_2\text{R}_2$ ($\text{R} = \text{NMe}_2, \text{Ph}$) with BuLi gave title compds. $\text{R}_2\text{FP}:\text{C}:\text{PFR}_2$ (II). ^{31}P NMR spectra of I and II were discussed in detail. The crystal structure of II ($\text{R} = \text{NMe}_2$) was detd.

IT **26040-41-5**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (dehydrofluorination of, with butyllithium, carbodiphosphorane by)

RN 26040-41-5 CAPLUS

CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI) (CA INDEX NAME)



L11 ANSWER 13 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1989:497374 CAPLUS

DOCUMENT NUMBER: 111:97374

TITLE: Alkyl- and aryl difluorophosphorane

AUTHOR(S): Fluck, E.; Braun, R.

CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Stuttgart, Stuttgart, D-7000/80, Fed. Rep. Ger.

SOURCE: Synthesis and Reactivity in Inorganic and Metal-Organic Chemistry (1988), 18(7), 727-38
 CODEN: SRIMCN; ISSN: 0094-5714

DOCUMENT TYPE: Journal

LANGUAGE: German

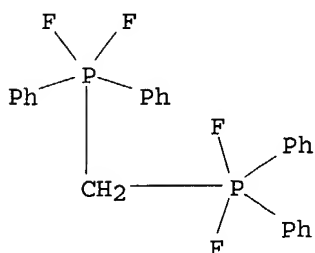
OTHER SOURCE(S): CASREACT 111:97374

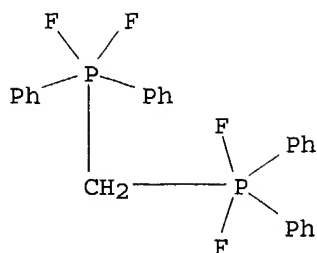
AB Methods of prepn. of alkyl and aryl difluorophosphoranes are reinvestigated. Routes starting from alkyl- and arylphosphines and using SF_4 as fluorinating agent or starting from alkyl- and aryl dibromophosphoranes and exchanging bromine for fluorine were used to prep. new members of the title compd. class. Thus, oxidative fluorination of $(\text{PhCH}_2)_2\text{PNet}_2$ with SF_4 in Et_2O gave 92.9% $(\text{PhCH}_2)_2\text{PF}_2\text{Net}_2$; $(\text{Me}_3\text{C})_2\text{PMeF}_2$ was prepd. by bromination of $(\text{Me}_3\text{C})_2\text{PMe}$ with Br_2 followed by fluorination with NaF.

IT **26040-41-5P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)

RN 26040-41-5 CAPLUS

CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI) (CA INDEX NAME)





L11 ANSWER 14 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1989:114968 CAPLUS

DOCUMENT NUMBER: 110:114968

TITLE: Photoreactions of tetrafluorodiphosphine with alkynes

AUTHOR(S): Morse, J. G.; Mielcarek, J. J.

CORPORATE SOURCE: Dep. Chem. Biochem., Utah State Univ., Logan, UT, 84322-0300, USA

SOURCE: Journal of Fluorine Chemistry (1988), 40(1), 41-9

CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 110:114968

AB The reactions of tetrafluorodiphosphine with several alkynes in the gas phase and under UV irradiation were studied. Simple addition products, e.g., $\text{CF}_3\text{C}(\text{PF}_2):\text{C}(\text{PF}_2)\text{CF}_3$ from $\text{CF}_3\text{C}\equiv\text{C}\cdot\text{CF}_3$, were obtained in substantial yield. Methyl-substituted alkynes gave little volatile product while ethyne and diphenylethyne gave no volatile addition products. Nonvolatile byproducts were obtained, probably polymers, in substantial quantity in the latter instances. Volatile products were characterized by IR and NMR spectra and by mass spectrometry.

IT 119254-98-7P 119254-99-8P 119255-00-4P

119255-01-5P 119255-02-6P 119280-18-1P

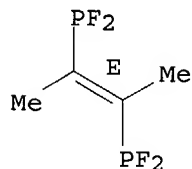
119280-19-2P 119280-20-5P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

RN 119254-98-7 CAPLUS

CN Phosphonous difluoride, (1,2-dimethyl-1,2-ethenediyl)bis-, (E)- (9CI) (CA INDEX NAME)

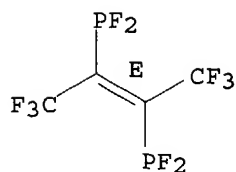
Double bond geometry as shown.



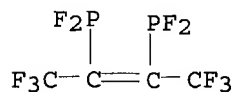
RN 119254-99-8 CAPLUS

CN Phosphonous difluoride, [1,2-bis(trifluoromethyl)-1,2-ethenediyl]bis-, (E)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

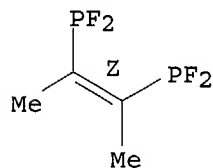


RN 119255-00-4 CAPLUS
 CN Phosphonous difluoride, [1,2-bis(trifluoromethyl)-1,2-ethenediyl]bis-
 (9CI) (CA INDEX NAME)



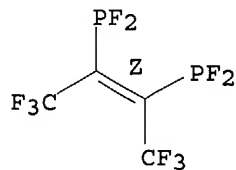
RN 119255-01-5 CAPLUS
 CN Phosphonous difluoride, (1,2-dimethyl-1,2-ethenediyl)bis-, (Z)- (9CI) (CA
 INDEX NAME)

Double bond geometry as shown.

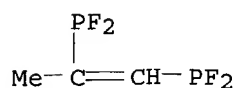


RN 119255-02-6 CAPLUS
 CN Phosphonous difluoride, [1,2-bis(trifluoromethyl)-1,2-ethenediyl]bis-,
 (Z)- (9CI) (CA INDEX NAME)

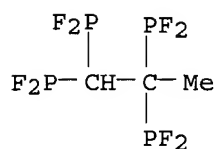
Double bond geometry as shown.



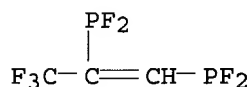
RN 119280-18-1 CAPLUS
 CN Phosphonous difluoride, (1-methyl-1,2-ethenediyl)bis- (9CI) (CA INDEX
 NAME)



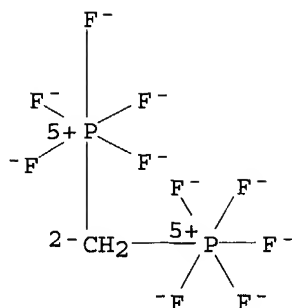
RN 119280-19-2 CAPLUS
 CN Phosphonous difluoride, (1-methyl-1,2-ethanediyldene)tetrakis- (9CI) (CA
 INDEX NAME)



RN 119280-20-5 CAPLUS
 CN Phosphonous difluoride, [1-(trifluoromethyl)-1,2-ethenediyl]bis- (9CI)
 (CA INDEX NAME)



L11 ANSWER 15 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1988:631158 CAPLUS
 DOCUMENT NUMBER: 109:231158
 TITLE: Methylene compounds of nonmetals. V.
 Methylenediphosphorus halides
 AUTHOR(S): Fild, M.; Handke, W.
 CORPORATE SOURCE: Inst. Anorg. Anal. Chem., Tech. Univ. Braunschweig,
 Braunschweig, D-3300, Fed. Rep. Ger.
 SOURCE: Zeitschrift fuer Anorganische und Allgemeine Chemie
 (1987), 555, 109-17
 CODEN: ZAACAB; ISSN: 0044-2313
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 OTHER SOURCE(S): CASREACT 109:231158
 AB The synthesis of methylene-bridged diphosphorus halides $\text{X}_2\text{P}(\text{Z})\text{CH}_2\text{PX}_2$,
 $\text{X}_2\text{P}(\text{Z})\text{CH}_2\text{P}(\text{Z})\text{X}_2$ and $\text{F}_4\text{PCH}_2\text{P}(\text{Z})\text{X}_2$ ($\text{X} = \text{F}, \text{Cl}$; $\text{Z} = \text{O}, \text{S}$) as well as the
 prepn. of the fluorophosphorane $\text{F}_4\text{PCH}_2\text{PF}_4$, and of the two anions,
 $[\text{F}_5\text{PCH}_2\text{PF}_5]^{2-}$ and $[\text{F}_5\text{PCH}_2\text{P}(\text{O})\text{F}_2]^-$, is reported.
 IT **117618-21-0P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (prepn. and hydrolysis of)
 RN 117618-21-0 CAPLUS
 CN Phosphate(2-), decafluoro-.mu.-methylenedi-, dipotassium (9CI) (CA INDEX
 NAME)



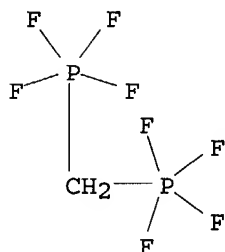
● 2 K⁺

IT 57080-69-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction of, with antimony fluoride)

RN 57080-69-0 CAPLUS

CN Phosphorane, methylenebis[tetrafluoro- (9CI) (CA INDEX NAME)



L11 ANSWER 16 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1988:37961 CAPLUS

DOCUMENT NUMBER: 108:37961

TITLE: Preparation and reactions of
difluoromethanebis(phosphonous acid dichlorides)

AUTHOR(S): Fild, Manfred; Reichert, Karl Heinz

CORPORATE SOURCE: Inst. Anorg. Anal. Chem., Tech. Univ. Braunschweig,
Braunschweig, D-3300, Fed. Rep. Ger.

SOURCE: Chemiker-Zeitung (1987), 111(5), 176-7

CODEN: CMKZAT; ISSN: 0009-2894

DOCUMENT TYPE: Journal

LANGUAGE: German

OTHER SOURCE(S): CASREACT 108:37961

AB Dethiolation of Cl₂P(S)CF₂P(S)Cl₂ with PhPCl₂ gave 82% Cl₂PCF₂PCl₂ (I).

Reaction of I with Me₂CHOH in presence of Et₃N gave 80%

(Me₂CHO)₂PCF₂P(OCHMe₂)₂ (II). Aminolysis of I with Me₃SiNMe₂ gave 90%

(Me₂N)₂PCF₂P(NMe₂)₂ (III). Fluorination of I with SbF₃ gave 63%

F₂PCF₂PF₂. Cyclization of I with Me₃CNH₂ in CH₂Cl₂ gave 50%

1-tert-butyl-2,4-dichloro-3,3-difluoro-1-aza-2,4-diphosphacyclobutane.

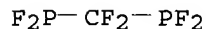
Complexation of II or III with norbornadienylmolybdenum tetracarbonyl gave

55% [(Me₂CHO)₂PCF₂P(OCHMe₂)₂]Mo(CO)₄ and 60% [(Me₂N)₂PCF₂P(NMe₂)₂]Mo(CO)₄.

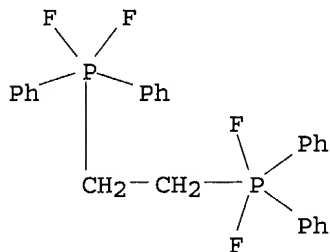
IT 112275-99-7P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

RN 112275-99-7 CAPLUS
CN Phosphonous difluoride, (difluoromethylene)bis- (9CI) (CA INDEX NAME)



L11 ANSWER 17 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1984:472840 CAPLUS
DOCUMENT NUMBER: 101:72840
TITLE: Carbonyl difluoride: a versatile fluorinating reagent
AUTHOR(S): Gupta, O. D.; Shreeve, Jeanne M.
CORPORATE SOURCE: Dep. Chem., Univ. Idaho, Moscow, ID, 83843, USA
SOURCE: Journal of the Chemical Society, Chemical
Communications (1984), (7), 416-17
CODEN: JCCCAT; ISSN: 0022-4936
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 101:72840
AB COF2 (I) oxidatively fluorinated organophosphorus compds. in CH2Cl2 at
25.degree. where the central atom is coordinatively unsatd. and replaced
P-H, N-H or C-H bonds with P-F, N-F or C-F bonds, resp. E.g., I with R3P
(R = Me, Bu, Me3C, Ph) in CH2Cl2 at 25.degree. for 12 h gave R3PF2 (same
R) in 70-80% yield.
IT **55339-52-1P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 55339-52-1 CAPLUS
CN Phosphorane, 1,2-ethanediylbis[difluorodiphenyl- (9CI) (CA INDEX NAME)



L11 ANSWER 18 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1984:447617 CAPLUS
DOCUMENT NUMBER: 101:47617
TITLE: Ligand influence on the electronic properties of some
bis(tertiary phosphine)-substituted chromium and
molybdenum carbonyls: cyclic voltammetry and infrared
spectroscopy of $\text{M}(\text{CO})_4\text{R}_2\text{PCH}_2\text{CH}_2\text{PR}_2$
AUTHOR(S): Cook, Ron L.; Morse, Joseph G.
CORPORATE SOURCE: Dep. Chem. Biochem., Utah State Univ., Logan, UT,
84322, USA
SOURCE: Inorganic Chemistry (1984), 23(15), 2332-6
CODEN: INOCAJ; ISSN: 0020-1669
DOCUMENT TYPE: Journal
LANGUAGE: English
AB $\text{R}_2\text{PCH}_2\text{CH}_2\text{PR}_2$ (R = F, Cl, C_6F_5 , MeO, Ph, Me and cyclohexyl) and their resp.
Cr and Mo complexes were prepd. to provide a wide range of electronic
effects at the metal center. Cyclic voltammetry and IR spectroscopy were
used to det. relative charge d. at the metal center. As detd. by cyclic

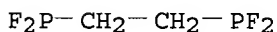
voltammetry the π -acceptor strength of $R_2PCH_2CH_2PR_2$ decreases in the order $R = F > Cl > C_6F_5 > MeO > Ph > Me > \text{cyclohexyl}$. A linear correlation between $k(CO)_{trans}$ and the value $E_{1/2} = (E_a + E_c)/2$ was found for the series $M(CO)_6$ and $M(CO)_4R_2PCH_2CH_2PR_2$ ($M = Cr$ or Mo and $R = F, Cl, C_6F_5, MeO$, and Ph). The complexes contg. $Me_2PCH_2CH_2PMe_2$ and $R_2PCH_2CH_2PR_2$ ($R = \text{cyclohexyl}$) do not fall on this line but lie below it. The existence of these 2 groups of phosphines is argued to reflect the difference in the π -acceptor capabilities of the ligands.

IT 50966-32-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, from bis(dichlorophosphino)ethane and potassium fluoride)

RN 50966-32-0 CAPLUS

CN Phosphonous difluoride, 1,2-ethanediylbis- (9CI) (CA INDEX NAME)



L11 ANSWER 19 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1981:425216 CAPLUS

DOCUMENT NUMBER: 95:25216

TITLE: Chemistry of phosphorus fluorides. 43. Synthesis and nuclear magnetic resonance spectroscopic studies of alkylene/alkylidenebis(phosphonic acid dihalides) and -bis(fluorophosphoranes)

AUTHOR(S): Althoff, Wolfgang; Fild, Manfred; Schmutzler, Reinhard
CORPORATE SOURCE: Tech. Univ. Braunschweig, Braunschweig, D-3300, Fed. Rep. Ger.

SOURCE: Chemische Berichte (1981), 114(3), 1082-90

CODEN: CHBEAM; ISSN: 0009-2940

DOCUMENT TYPE: Journal

LANGUAGE: German

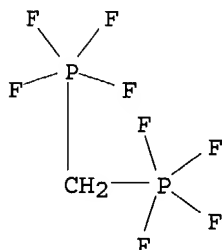
AB Cl-F exchange in $X[P(O)Cl_2]_2$ with AsF_3 gave $X[P(O)F_2]_2$ (I). Reaction of I with SF_4 gave $X[PF_4]_2$ ($X = CH_2$ (II), CH_2CH_2 , trans-CH:CH). Addnl. methods of synthesis were indicated for II which were based on the cleavage of the Si-C bond with PF_5 in the Si-C bonded precursors, 1,1,3,3-tetramethyl-1,3-disilacyclobutane and $Me_3SiCH_2PF_4$.

IT 57080-69-0P 78102-40-6P 78102-41-7P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

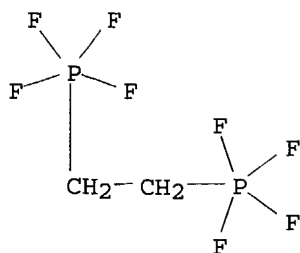
RN 57080-69-0 CAPLUS

CN Phosphorane, methylenebis[tetrafluoro- (9CI) (CA INDEX NAME)



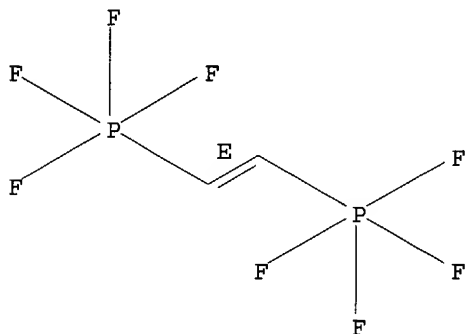
RN 78102-40-6 CAPLUS

CN Phosphorane, 1,2-ethanediylbis[tetrafluoro- (9CI) (CA INDEX NAME)

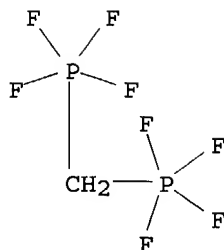


RN 78102-41-7 CAPLUS
 CN Phosphorane, 1,2-ethenediylbis[tetrafluoro-, (E)- (9CI)] (CA INDEX NAME)

Double bond geometry as shown.

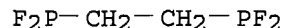


L11 ANSWER 20 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1979:38988 CAPLUS
 DOCUMENT NUMBER: 90:38988
 TITLE: A novel diphosphorus zwitterion
 AUTHOR(S): Cowley, Alan H.; Lee, Rosalind Chung-Yi
 CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, USA
 SOURCE: Inorganic Chemistry (1979), 18(1), 60-3
 CODEN: INOCAJ; ISSN: 0020-1669
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A novel acyclic diphosphorus zwitterion F5P-CH2P+(NMe2)2F (I) contg. both hexa- and tetracoordinate P atoms was synthesized by reaction of Me3SiNMe2 with (F4P)2CH2. The 1H and 19F resonances of I collapse at higher temps. Possible causes for these spectral changes are discussed. Some unsuccessful attempts to synthesize new (F4P)2X compds. (Z = NMe, O, S) are described.
 IT 57080-69-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with (dimethylamino)trimethylsilane)
 RN 57080-69-0 CAPLUS
 CN Phosphorane, methylenebis[tetrafluoro- (9CI)] (CA INDEX NAME)



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L11 ANSWER 21 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1979:15633 CAPLUS
 DOCUMENT NUMBER: 90:15633
 TITLE: Coordination chemistry of bidentate difluorophosphines. IV. Complexes of 1,2-bis(difluorophosphino)ethane with nickel(0) and molybdenum(0)
 AUTHOR(S): Gallup, Darrell L.; Morse, Joseph G.
 CORPORATE SOURCE: Dep. Chem. Biochem., Utah State Univ., Logan, UT, USA
 SOURCE: Journal of Organometallic Chemistry (1978), 159(4), 477-82
 CODEN: JORCAI; ISSN: 0022-328X
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The ligand, 1,2-bis(difluorophosphino)ethane reacts with Ni(CO)₄ in the gas phase and in soln. to produce CO and a polymer, [Ni(PF₂C₂H₄PF₂)₂]_x. PF₂C₂H₄PF₂ displaces norbornadiene from (C₇H₈)Mo(CO)₄ to yield the relatively air-stable complex, Mo(CO)₄(PF₂C₂H₄PF₂). Anal. of the IR spectrum of the monomeric complex indicates that the ligand exhibits .pi.-acceptor strength equal to that of 1,2-bis(difluorophosphino)cyclohexane.
 IT 50966-32-0
 RL: RCT (Reactant); RACT (Reactant or reagent) (.pi.-acceptor strength of)
 RN 50966-32-0 CAPLUS
 CN Phosphonous difluoride, 1,2-ethanediyldis- (9CI) (CA INDEX NAME)



L11 ANSWER 22 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1977:584607 CAPLUS
 DOCUMENT NUMBER: 87:184607
 TITLE: Oligo(difluorophosphoranes) by direct fluorination of tertiary phosphines
 AUTHOR(S): Ruppert, Ingo; Bastian, Volker
 CORPORATE SOURCE: Anorg.-Chem. Inst., Univ. Bonn, Bonn, Fed. Rep. Ger.
 SOURCE: Angewandte Chemie (1977), 89(10), 763-5
 CODEN: ANCEAD; ISSN: 0044-8249
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 AB Fluorination of Ph₂P(CH₂)_nPPh₂ in CFC1₃ gave 71-89% Ph₂PF₂(CH₂)_nPF₂Ph₂ (n = 1-4) similarly, Ph₂PF₂(CH₂)₂PF₂Me₂, (CH₂)₃(PF₂Me₂)₂, PhPF₂(CH₂CH₂PF₂Ph₂)₂, and Ph₂PF₂CH₂CH₂PF₂(CH₂CH₂PF₂Ph₂)₂ were prepd.
 IT 26040-41-5P 55339-52-1P 55339-53-2P

63883-57-8P 63883-58-9P 63883-59-0P

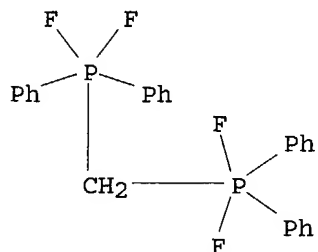
63883-60-3P 63883-61-4P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

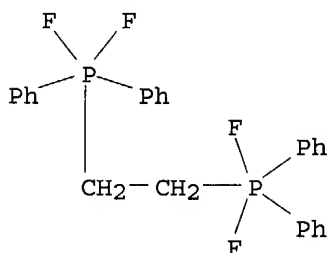
RN 26040-41-5 CAPLUS

CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI) (CA INDEX NAME)



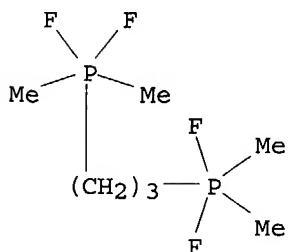
RN 55339-52-1 CAPLUS

CN Phosphorane, 1,2-ethanediylbis[difluorodiphenyl- (9CI) (CA INDEX NAME)



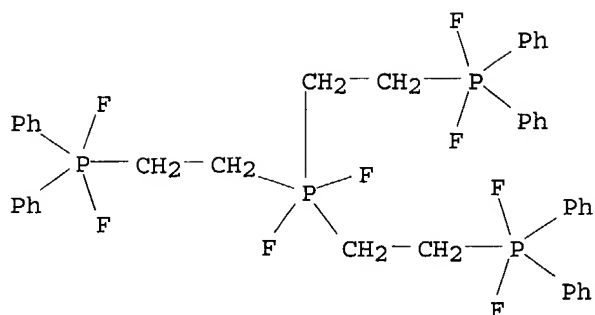
RN 55339-53-2 CAPLUS

CN Phosphorane, 1,3-propanediylbis[difluorodimethyl- (9CI) (CA INDEX NAME)

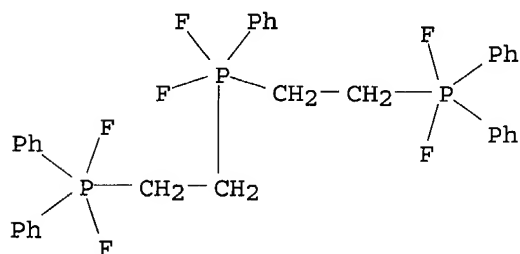


RN 63883-57-8 CAPLUS

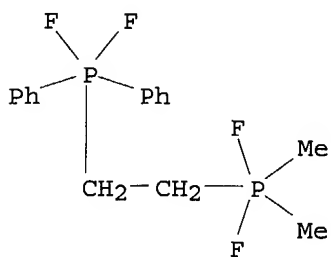
CN Phosphorane, tris[2-(difluorodiphenylphosphoranyl)ethyl]difluoro- (9CI) (CA INDEX NAME)



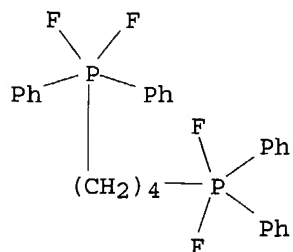
RN 63883-58-9 CAPLUS
 CN Phosphorane, bis[2-(difluorodiphenylphosphoranyl)ethyl]difluorophenyl-
 (9CI) (CA INDEX NAME)



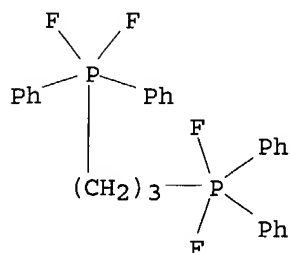
RN 63883-59-0 CAPLUS
 CN Phosphorane, [2-(difluorodimethylphosphoranyl)ethyl]difluorodiphenyl-
 (9CI) (CA INDEX NAME)



RN 63883-60-3 CAPLUS
 CN Phosphorane, 1,4-butanediylbis[difluorodiphenyl- (9CI) (CA INDEX NAME)



RN 63883-61-4 CAPLUS
 CN Phosphorane, 1,3-propanediylbis[difluorodiphenyl]- (9CI) (CA INDEX NAME)



L11 ANSWER 23 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1977:584598 CAPLUS
 DOCUMENT NUMBER: 87:184598
 TITLE: Preparation of diphosphorus(III) compounds with methylene bridges
 AUTHOR(S): Fild, Manfred; Heinze, Jutta; Krueger, Wieland
 CORPORATE SOURCE: Tech. Univ. Braunschweig, Braunschweig, Fed. Rep. Ger.
 SOURCE: Chemiker-Zeitung (1977), 101(5), 259-60
 CODEN: CMKZAT; ISSN: 0009-2894
 DOCUMENT TYPE: Journal
 LANGUAGE: German
 AB CH₂(PCl₂)₂, prepd. in 65% yield from CH₂(PSCl₂)₂ and Ph₂PCl, was treated with MeOH, Et₂NH, MeLi, and SbF₃ to give, resp., CH₂[P(OMe)₂]₂, CH₂[P(NEt₂)₂]₂, CH₂(PMe₂)₂, and CH₂(PF₂)₂.
 IT 60839-30-7P
 RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)
 RN 60839-30-7 CAPLUS
 CN Phosphonous difluoride, methylenebis- (9CI) (CA INDEX NAME)



L11 ANSWER 24 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1976:560263 CAPLUS
 DOCUMENT NUMBER: 85:160263
 TITLE: The synthesis and characterization of some new difluorophosphine derivatives
 AUTHOR(S): Bockerman, G. N.; Parry, R. W.
 CORPORATE SOURCE: Dep. Chem., Univ. Michigan, Ann Arbor, MI, USA
 SOURCE: Inorg. Nucl. Chem. - Herbert H. Hyman Mem. Vol. (1976), 55-8. Editor(s): Katz, Joseph J.; Sheft, Irving. Pergamon: Oxford, Engl.
 CODEN: 33TZAU
 DOCUMENT TYPE: Conference
 LANGUAGE: English
 AB F₂PCH₂PF₂ was prepd. in 32% yield by the photolytic decompn. of F₂PCH₂I (prepd. by the metathesis between F₂PI and ICH₂HgI) in the presence of Hg. F₂PCH₂CH:CH₂ was prepd. in 49% yield by the reaction of CH₂:CHCH₂I with F₂PI.
 IT 60839-30-7P
 RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)
 RN 60839-30-7 CAPLUS

CN Phosphonous difluoride, methylenebis- (9CI) (CA INDEX NAME)



L11 ANSWER 25 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1976:121956 CAPLUS

DOCUMENT NUMBER: 84:121956

TITLE: Photoreactions of tetrafluorodiphosphine with partially fluorinated ethenes

AUTHOR(S): Glanville, W. Kent; Morse, Karen W.; Morse, Joseph G.

CORPORATE SOURCE: Dep. Chem. Biochem., Utah State Univ., Logan, UT, USA

SOURCE: Journal of Fluorine Chemistry (1976), 7(1-3), 153-8

CODEN: JFLCAR; ISSN: 0022-1139

DOCUMENT TYPE: Journal

LANGUAGE: English

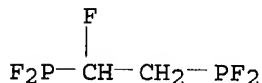
AB The photoreactions of P_2F_4 with partially fluorinated ethenes gave 1,2-bis(difluorophosphino)-1-fluoroethane, 1,2-bis(difluorophosphino)-1,1-difluoroethane, and 1,2-bis(difluorophosphino)-1,1,2-trifluoroethane. A rapidly diminishing yield of product results with increasing fluorination of the olefin.

IT 59239-79-1 59239-80-4 59239-81-5

RL: RCT (Reactant); RACT (Reactant or reagent)
(sepn. and NMR of)

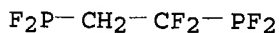
RN 59239-79-1 CAPLUS

CN Phosphonous difluoride, (1-fluoro-1,2-ethanediyl)bis- (9CI) (CA INDEX NAME)



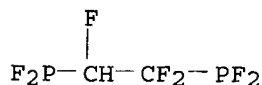
RN 59239-80-4 CAPLUS

CN Phosphonous difluoride, (1,1-difluoro-1,2-ethanediyl)bis- (9CI) (CA INDEX NAME)



RN 59239-81-5 CAPLUS

CN Phosphonous difluoride, (1,1,2-trifluoro-1,2-ethanediyl)bis- (9CI) (CA INDEX NAME)



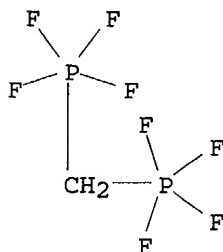
L11 ANSWER 26 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1975:497486 CAPLUS

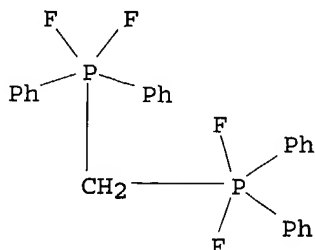
DOCUMENT NUMBER: 83:97486

TITLE: Cleavage of the silicon-carbon bond by a phosphorus fluoride. Methylenebis(tetrafluorophosphorane)

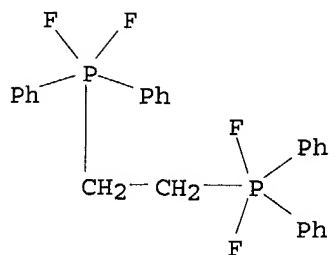
AUTHOR(S): Althoff, Wolfgang; Fild, Manfred; Koop, Hermann;
Schmutzler, Reinhard
CORPORATE SOURCE: Tech. Univ., Braunschweig, Fed. Rep. Ger.
SOURCE: Journal of the Chemical Society, Chemical
Communications (1975), (12), 468-9
CODEN: JCCCAT; ISSN: 0022-4936
DOCUMENT TYPE: Journal
LANGUAGE: English
AB PF5 cleavage of 1,1,3,3-tetramethyl-1,3-disilacyclobutane gave CH₂(PF₄)₂
(I) and (FSiMe₂CH₂)₂. ¹⁹F and ³¹P NMR spectroscopy showed that I
underwent fast positional exchange of ligands at P from -100 to
30.degree..
IT 57080-69-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 57080-69-0 CAPLUS
CN Phosphorane, methylenebis[tetrafluoro- (9CI) (CA INDEX NAME)



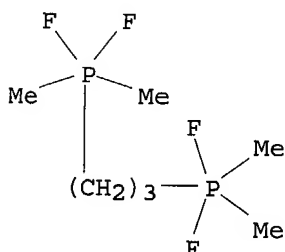
L11 ANSWER 27 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1975:458939 CAPLUS
DOCUMENT NUMBER: 83:58939
TITLE: Alkylenebis(difluorophosphoranes) by hydrofluorination
of silylated phosphorus(V) imides
AUTHOR(S): Appel, Rolf; Ruppert, Ingo
CORPORATE SOURCE: Anorg.-Chem. Inst., Univ. Bonn, Bonn, Fed. Rep. Ger.
SOURCE: Chemische Berichte (1975), 108(3), 919-24
CODEN: CHBEAM; ISSN: 0009-2940
DOCUMENT TYPE: Journal
LANGUAGE: German
AB (CH₂)_n(PF₂R₂)₂ (R, n given: Ph, 1; Ph, 2; Me, 3) were prepd. by cleavage
and fluorination of R₂P(:NSiMe₃)(CH₂)_nPR₂(:NSiMe₃) with HF in ether.
IT 26040-41-5P 55339-52-1P 55339-53-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
RN 26040-41-5 CAPLUS
CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI) (CA INDEX
NAME)



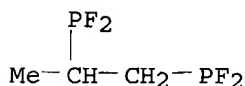
RN 55339-52-1 CAPLUS
 CN Phosphorane, 1,2-ethanediylbis[difluorodiphenyl- (9CI) (CA INDEX NAME)

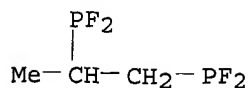


RN 55339-53-2 CAPLUS
 CN Phosphorane, 1,3-propanediylbis[difluorodimethyl- (9CI) (CA INDEX NAME)

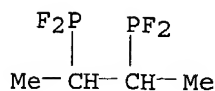


L11 ANSWER 28 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1975:105840 CAPLUS
 DOCUMENT NUMBER: 82:105840
 TITLE: Photoreactions of tetrafluorodiphosphine with
 nonsubstituted olefins and perfluoroolefins
 AUTHOR(S): Morse, Joseph G.; Morse, Karen W.
 CORPORATE SOURCE: Dep. Chem. Biochem., Utah State Univ., Logan, UT, USA
 SOURCE: Inorganic Chemistry (1975), 14(3), 565-9
 CODEN: INOCAJ; ISSN: 0020-1669
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The photoreactions of P2F4 with C2H4, C3H6, 2-C4H8, C6H10, C2F4, and C3F6
 have resulted in the formation of F2PCH2CH2PF2, CH3CHPF2CH2PF2,
 CH3CHPF2CHPF2CH3, C6H10(PF2)2, F2PCF2CF2PF2, and CF3CFPF2CF2PF2. No
 recoverable amt. of comparable products was obtained in similar mixts. of
 P2F4 and 2-C4F8 or of P2F4 and C6F10. The new compds. were characterized
 by ir, NMR, and mass spectrometry. C6H10(PF2)2 displays temp.-dependent
 NMR spectra consistent with the trans isomer.
 IT 53432-50-1P 53432-51-2P 53432-53-4P
 53432-54-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 RN 53432-50-1 CAPLUS
 CN Phosphonous difluoride, (1-methyl-1,2-ethanediyl)bis- (9CI) (CA INDEX
 NAME)

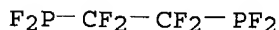




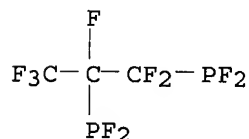
RN 53432-51-2 CAPLUS
CN Phosphonous difluoride, (1,2-dimethyl-1,2-ethanediyl)bis- (9CI) (CA INDEX NAME)



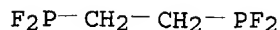
RN 53432-53-4 CAPLUS
CN Phosphonous difluoride, (1,1,2,2-tetrafluoro-1,2-ethanediyl)bis- (9CI) (CA INDEX NAME)



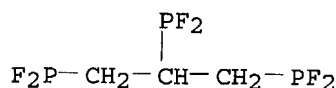
RN 53432-54-5 CAPLUS
CN Phosphonous difluoride, [1,1,2-trifluoro-2-(trifluoromethyl)-1,2-ethanediyl]bis- (9CI) (CA INDEX NAME)



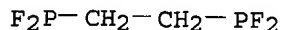
L11 ANSWER 29 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1975:43523 CAPLUS
DOCUMENT NUMBER: 82:43523
TITLE: Chemistry of 1,2-bis(difluorophosphino)ethane.
Preparation of 2,5-difluoro-1-methyl-1,2,5-azadiphospholidine and 1-dimethylaminofluorophosphino-2-difluorophosphinoethane
AUTHOR(S): Falardeau, E. R.; Morse, K. W.; Morse, J. G.
CORPORATE SOURCE: Dep. Chem. Biochem., Utah State Univ., Logan, UT, USA
SOURCE: Inorganic Chemistry (1975), 14(1), 132-4
CODEN: INOCAJ; ISSN: 0020-1669
DOCUMENT TYPE: Journal
LANGUAGE: English
GI For diagram(s), see printed CA Issue.
AB The gas-phase reaction of methylamine with F₂PCH₂CH₂PF₂ by ring closure gave 2,5-difluoro-1-methyl-1,2,5-azadiphosphilidine, (I). Under similar conditions, ammonia apparently gave ring closure also but in much lower yield and with lower stability. Dimethylamine gave Me₂NPFCH₂CH₂PF₂.
IT 50966-32-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with ammonia and methanamines)
RN 50966-32-0 CAPLUS
CN Phosphonous difluoride, 1,2-ethanediylbis- (9CI) (CA INDEX NAME)



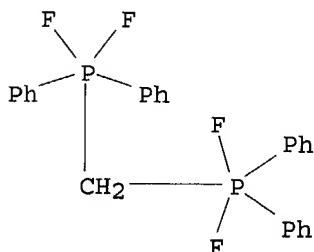
L11 ANSWER 30 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1974:536232 CAPLUS
 DOCUMENT NUMBER: 81:136232
 TITLE: Reactions of tetrafluorodiphosphine with some
 3-substituted propene derivatives
 AUTHOR(S): Falardeau, E. R.; Morse, K. W.; Morse, J. G.
 CORPORATE SOURCE: Dep. Chem. Biochem., Utah State Univ., Logan, UT, USA
 SOURCE: Inorganic Chemistry (1974), 13(10), 2333-7
 CODEN: INOCAJ; ISSN: 0020-1669
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The reaction of P2F4 with F2PCH2CH: CH2 and H2NCH2CH: CH2 gave
 F2PCH2CHPF2CH2PF2 and F2PNHCH2CH: CH2, resp. Me2NCH2CH: CH2 reacts in the
 dark with P2F4 to give unidentified solid products. The formation of
 F2PCH2CHPF2CH2PF2 proceeds by a free-radical path and its tribasic
 character demonstrated by the formation of a triadduct with B2H6. The
 relative Lewis basicities of the two kinds of P in F2PCH2CHPF2CH2PF2 was
 investigated by NMR of a 1:1 mixt. of B2H6 and F2PCH2CHPF2CH2PF2.
 IT 52124-34-2P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 RN 52124-34-2 CAPLUS
 CN Phosphonous difluoride, 1,2,3-propanetriyltris- (9CI) (CA INDEX NAME)



L11 ANSWER 31 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1974:15017 CAPLUS
 DOCUMENT NUMBER: 80:15017
 TITLE: Free radical reactions of tetrafluorodiphosphine.
 Preparation of 1,2-bis(difluorophosphino)ethane
 AUTHOR(S): Morse, Karen W.; Morse, Joseph G.
 CORPORATE SOURCE: Dep. Chem., Utah State Univ., Logan, UT, USA
 SOURCE: Journal of the American Chemical Society (1973),
 95(25), 8469-70
 CODEN: JACSAT; ISSN: 0002-7863
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB F2PCH2CH2PF2 was prepd. by gas-phase photolysis or thermolysis at
 300.degree. of P2F4 and CH2:CH2. The structure was confirmed by spectral
 data, as was the structure of the 1:1 adduct with diborane.
 IT 50966-32-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and spectral characteristics of)
 RN 50966-32-0 CAPLUS
 CN Phosphonous difluoride, 1,2-ethanediylbis- (9CI) (CA INDEX NAME)



L11 ANSWER 32 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1970:7180 CAPLUS
 DOCUMENT NUMBER: 72:7180
 TITLE: Mass spectroscopic studies of phosphorus-fluorine compounds. Compounds containing five-coordinate phosphorus
 AUTHOR(S): Blazer, T. A.; Schmutzler, R.; Gregor, I. K.
 CORPORATE SOURCE: Repauno Develop. Lab., E. I. du Pont de Nemours and Co., Inc., Gibbstown, NJ, USA
 SOURCE: Zeitschrift fuer Naturforschung, Teil B: Anorganische Chemie, Organische Chemie, Biochemie, Biophysik, Biologie (1969), 24(9), 1081-8
 CODEN: ZENBAX; ISSN: 0044-3174
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The mass spectra (m/e) of 24 compds. are tabulated, along with the probable ion assignments and their relative abundances. There are 7 tetrafluorophosphoranes: FPF4(= PF5), MePF4, EtPF4, Ph-PF4, Me2NPF4, Et2NPF4, Ph2NPF4; 9 trifluorophosphoranes: Me2PF3, Ph2PH3, EtPF3NMe2, EtPF3NET2, EtPF3Q, (Q = pyrrol-1-yl), PhPF3NET2, PhPF3Q PF3[NMe2]2, PF3[NET2]2; 8 difluorophosphoranes: Me3PF2, Bu3PF2, Me2PhPF2, MePh2PF2, [Ph2PF2]2CH2, Ph3PF2, Me2PF2NMe2, Ph2PF2NMe2.
 Methylenebis[diphenyldifluorophosphorane], newly reported, was prepd. from methylenebis[diphenylphosphine] and SF4 in benzene, the excess SF4 vented and NaF added, then pptd. and crystd. The compd. was characterized by elemental anal., and by N.M.R. and ir spectroscopy.
 IT 26040-41-5
 RL: PRP (Properties)
 (mass spectrum of)
 RN 26040-41-5 CAPLUS
 CN Phosphorane, methylenebis[difluorodiphenyl-, stereoisomer (9CI) (CA INDEX NAME)



L11 ANSWER 33 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1966:104419 CAPLUS
 DOCUMENT NUMBER: 64:104419
 ORIGINAL REFERENCE NO.: 64:19678f-h
 TITLE: Fluorophosphoranes
 INVENTOR(S): Schmutzler, Reinhard
 PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.
 SOURCE: 6 pp.
 DOCUMENT TYPE: Patent
 LANGUAGE: Unavailable
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|----------|-----------------|----------|
| US 3246032 | | 19660412 | US | 19630121 |

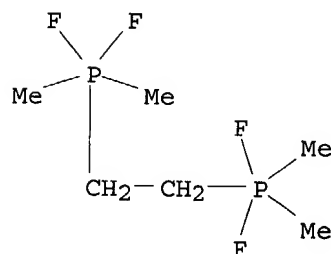
GI For diagram(s), see printed CA Issue.

AB The title compds., useful as polymerization catalysts and as additives with fire retardant and surface modifying properties, were prepd. from the resp. phosphine sulfides. E.g., a mixt. of 37.2 parts tetramethyldiphosphine disulfide (I) and 70 parts SbF₃ was ground in a N atm., placed in a 100 ml. 2-necked flask, and gently heated under N to yield 38.6 parts (82%) of dimethyltrifluorophosphorane, b. 62.degree.. I was prepd. by treating PSCl₃ with the appropriate Grignard reagent. Similarly prepd. were dibutyltrifluorophosphorane, b10 71.degree.; tetrabutylphosphine disulfide, m. 73-6.degree.; phenylmethyltrifluorophosphorane, b9 64.degree., n_{26.5D} 1.4646; tributyldifluorophosphorane, b0.4 71-2.degree., n_{20D} 1.4346, and n_{26.5D} 1.4318; tributylphosphine sulfide, b0.5 129-30.degree., n_{25D} 1.5011; P,P,P',P'-tetramethylethylenebis(difluorophosphorane), m. 47.1-8.4.degree.; bis(cyclotetramethylene)diphosphine disulfide (II), m. 185.degree.; bis(cyclopentamethylene)diphosphine disulfide, softening at 185.degree. and completely melted at 225.degree.; cycloctetramethylene-trifluorophosphorane, b90 61-2.degree.; cyclopentamethylenetrifluorophosphorane, b40 64-5.degree.; phenyldibutylphosphine sulfide, m. 50.5-1.5.degree.; phenyldibutyldifluorophosphorane, b0.3 89.degree., b0.08 80.degree., and n_{24.4D} 1.5010; III, b5 100-20.degree., IV (R = S), m. 69-70.degree.; IV (R = F₂), b5 100-20.degree..

IT 1682-01-5, Phosphorane, ethylenebis[difluorodimethyl- (prepn. of)

RN 1682-01-5 CAPLUS

CN Phosphorane, ethylenebis[difluorodimethyl- (7CI, 8CI) (CA INDEX NAME)



L11 ANSWER 34 OF 34 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1964:50599 CAPLUS

DOCUMENT NUMBER: 60:50599

ORIGINAL REFERENCE NO.: 60:8878h,8879a

TITLE: Molecular asymmetry in the coordination of olefins to transition metals

AUTHOR(S): Pajaro, G.; Corradini, P.; Palumbo, R.; Panunzi, A.

CORPORATE SOURCE: Univ. Naples

SOURCE: Makromolekulare Chemie (1964), 71, 184-8
CODEN: MACEAK; ISSN: 0025-116X

DOCUMENT TYPE: Journal

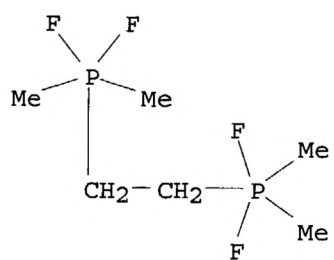
LANGUAGE: English

AB Evidence is given for a complex trans-[PtCl₂((-)(S)-.alpha.-phenylethylamine)(olefin)] where olefin is propylene, styrene, and cis- and trans-2-butene, possessing 2 different diastereoisomers in equil. in soln. The olefin should not contain symmetry planes perpendicular to the plane of the double bond and the olefin and optically active ligand should be coordinated to a transition metal. The prepn. is carried out through exchange in CH₂Cl₂ with the corresponding ethylene complex.

IT 1682-01-5, Phosphorane, ethylenebis[difluorodimethyl- (prepn. and properties of)

RN 1682-01-5 CAPLUS

CN Phosphorane, ethylenebis[difluorodimethyl- (7CI, 8CI) (CA INDEX NAME)



FILE 'CASREACT' ENTERED AT 11:10:43 ON 15 DEC 2003

FILE 'CASREACT' ENTERED AT 11:12:21 ON 15 DEC 2003

FILE 'BEILSTEIN' ENTERED AT 11:15:15 ON 15 DEC 2003

=>

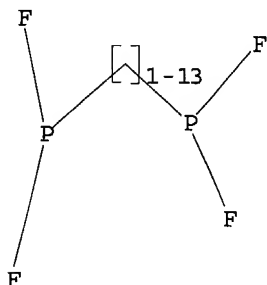
Uploading 10084681.str

L22 STRUCTURE UPLOADED

=> d

L22 HAS NO ANSWERS

L22 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 2/p

L23 46066 2/P

=> s l23 and f/els

530531 F/ELS

L24 2866 L23 AND F/ELS

=> s l22 subset=l24

ENTER SUBSET SEARCH SCOPE - SAMPLE, FULL, RANGE, OR (END):sam

SAMPLE SUBSET SEARCH INITIATED 11:16:36 FILE 'BEILSTEIN'

SAMPLE SUBSET SCREEN SEARCH COMPLETED - 3 TO ITERATE

100.0% PROCESSED 3 ITERATIONS

1 ANSWERS

SEARCH TIME: 00.00.02

PROJECTIONS (WITHIN SPECIFIED SUBSET):

ONLINE **COMPLETE**

PROJECTED ITERATIONS (WITHIN SPECIFIED SUBSET):

3 TO 163

PROJECTED ANSWERS (WITHIN SPECIFIED SUBSET):

1 TO 80

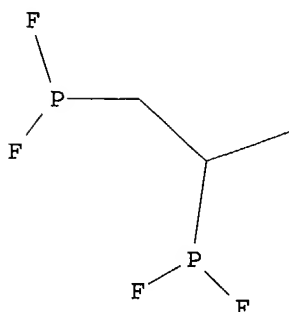
L25 1 SEA SUB=L24 SSS SAM L22

=> d ide

L25 ANSWER 1 OF 1 BEILSTEIN COPYRIGHT 2003 BEILSTEIN MDL on STN

| | |
|---------------------------|-------------|
| Beilstein Records (BRN): | 2234188 |
| Beilstein Pref. RN (BPR): | 53432-50-1 |
| CAS Reg. No. (RN): | 53432-50-1 |
| Molec. Formula (MF): | C3 H6 F4 P2 |
| Molecular Weight (MW): | 180.02 |
| Lawson Number (LN): | 3764 |

Compound Type (CTYPE): acyclic
 Constitution ID (CONSID): 2035936
 Tautomer ID (TAUTID): 2128109
 Beilstein Citation (BSO): 5-04
 Entry Date (DED): 1989/06/29
 Update Date (DUPD): 1991/01/23



Field Availability:

| Code | Name | Occurrence |
|--------|----------------------------|------------|
| BRN | Beilstein Records | 1 |
| BPR | Beilstein Preferred RN | 1 |
| RN | CAS Registry Number | 1 |
| MF | Molecular Formula | 1 |
| FW | Formular Weight | 1 |
| LN | Lawson Number | 1 |
| CTYPE | Compound Type | 1 |
| CONSID | Constitution ID | 1 |
| TAUTID | Tautomer ID | 1 |
| BSO | Beilstein Citation | 1 |
| ED | Entry Date | 1 |
| UPD | Update Date | 1 |
| IR | Infrared Spectrum | 1 |
| MP | Melting Point | 1 |
| MS | Mass Spectrum | 1 |
| NMR | Nuclear Magnetic Resonance | 1 |
| VP | Vapour Pressure | 1 |

This substance also occurs in Reaction Documents:

| Code | Name | Occurrence |
|-------|-------------------------------|------------|
| RX | Reaction Documents | 1 |
| RXPRO | Substance is Reaction Product | 1 |

=>

=> d his

(FILE 'HOME' ENTERED AT 10:31:40 ON 15 DEC 2003)

FILE 'REGISTRY' ENTERED AT 10:34:58 ON 15 DEC 2003

L1 STRUCTURE UPLOADED

L2 5 S L1

L3 71 S L1 FULL

L4 60 S L3 NOT N/ELS
L5 50 S L4 NOT O/ELS
L6 58 S L4 NOT ETHYNE?
L7 58 S L6 NOT ETHYNE?
L8 53 S L7 NOT S/ELS
L9 46 S L8 NOT O/ELS
L10 43 S L9 NOT B/ELS

FILE 'CAPLUS' ENTERED AT 10:39:33 ON 15 DEC 2003
L11 34 S L10

FILE 'REGISTRY' ENTERED AT 10:46:46 ON 15 DEC 2003
L12 0 S BIS DIETHYLFLUOROPHOSPHORA? ETHANE
L13 0 S BIS DIETHYLFLUOROPHOSPH? ETHANE
L14 0 S BIS DIETHYLDIFLUOROPHOSPH? ETHANE
L15 0 S BIS DIETHYL DIFLUORO PHOSPHOR? ETHANE
L16 0 S BIS DIETHYL DIFLUORO PHOSPHOR? ETH?
L17 0 S DIETHYL DIFLUORO PHOSPHORANE ETHYLENE

FILE 'REGISTRY' ENTERED AT 10:57:25 ON 15 DEC 2003
L18 2 S C10F28P2/MF

FILE 'CAPLUS' ENTERED AT 10:58:35 ON 15 DEC 2003
L19 4 S L18
L20 1 S L10 AND ELECTROLY?
L21 1 S L10 AND .OMEGA.

FILE 'CASREACT' ENTERED AT 11:10:43 ON 15 DEC 2003

FILE 'CASREACT' ENTERED AT 11:12:21 ON 15 DEC 2003

FILE 'BEILSTEIN' ENTERED AT 11:15:15 ON 15 DEC 2003
L22 STRUCTURE UPLOADED
L23 46066 S 2/P
L24 2866 S L23 AND F/ELS
L25 1 S L22 SUB=L24 SAM

=> s l22 subset=l24 full
FULL SUBSET SEARCH INITIATED 11:17:05 FILE 'BEILSTEIN'
FULL SUBSET SCREEN SEARCH COMPLETED - 82 TO ITERATE

100.0% PROCESSED 82 ITERATIONS
SEARCH TIME: 00.00.05

37 ANSWERS

L26 37 SEA SUB=L24 SSS FUL L22

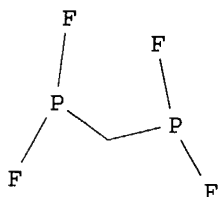
=> s l26 not (n/els or o/els)
5710939 N/ELS
7711448 O/ELS
L27 31 L26 NOT (N/ELS OR O/ELS)

=> s l27 not l25
L28 30 L27 NOT L25

=> s l28 not phenyl
2091959 PHENYL
1 PHENYLS
2091960 PHENYL
(PHENYL OR PHENYLS)
L29 30 L28 NOT PHENYL

=> d ide 30

Beilstein Records (BRN): 1920262
 Beilstein Pref. RN (BPR): 60839-30-7
 CAS Reg. No. (RN): 60839-30-7
 Molec. Formula (MF): C H2 F4 P2
 Molecular Weight (MW): 151.97
 Lawson Number (LN): 689
 Compound Type (CTYPE): acyclic
 Constitution ID (CONSID): 1759100
 Tautomer ID (TAUTID): 1836115
 Beilstein Citation (BSO): 5-01, 6-01
 Entry Date (DED): 1989/06/29
 Update Date (DUPD): 1996/08/09



Field Availability:

| Code | Name | Occurrence |
|--------|----------------------------|------------|
| BRN | Beilstein Records | 1 |
| BPR | Beilstein Preferred RN | 1 |
| RN | CAS Registry Number | 1 |
| MF | Molecular Formula | 1 |
| FW | Formular Weight | 1 |
| LN | Lawson Number | 1 |
| CTYPE | Compound Type | 1 |
| CONSID | Constitution ID | 1 |
| TAUTID | Tautomer ID | 1 |
| BSO | Beilstein Citation | 2 |
| ED | Entry Date | 1 |
| UPD | Update Date | 1 |
| BP | Boiling Point | 1 |
| NMR | Nuclear Magnetic Resonance | 1 |

This substance also occurs in Reaction Documents:

| Code | Name | Occurrence |
|-------|-------------------------------|------------|
| RX | Reaction Documents | 2 |
| RXPRO | Substance is Reaction Product | 2 |

=> d his

(FILE 'HOME' ENTERED AT 10:31:40 ON 15 DEC 2003)

FILE 'REGISTRY' ENTERED AT 10:34:58 ON 15 DEC 2003

L1 STRUCTURE UPLOADED
 L2 5 S L1
 L3 71 S L1 FULL
 L4 60 S L3 NOT N/ELS

L5 50 S L4 NOT O/ELS
L6 58 S L4 NOT ETHYNE?
L7 58 S L6 NOT ETHYNE?
L8 53 S L7 NOT S/ELS
L9 46 S L8 NOT O/ELS
L10 43 S L9 NOT B/ELS

FILE 'CAPLUS' ENTERED AT 10:39:33 ON 15 DEC 2003
L11 34 S L10

FILE 'REGISTRY' ENTERED AT 10:46:46 ON 15 DEC 2003
L12 0 S BIS DIETHYLFLUOROPHOSPHORA? ETHANE
L13 0 S BIS DIETHYLFLUOROPHOSPH? ETHANE
L14 0 S BIS DIETHYLDIFLUOROPHOSPH? ETHANE
L15 0 S BIS DIETHYL DIFLUORO PHOSPHOR? ETHANE
L16 0 S BIS DIETHYL DIFLUORO PHOSPHOR? ETH?
L17 0 S DIETHYL DIFLUORO PHOSPHORANE ETHYLENE

FILE 'REGISTRY' ENTERED AT 10:57:25 ON 15 DEC 2003
L18 2 S C10F28P2/MF

FILE 'CAPLUS' ENTERED AT 10:58:35 ON 15 DEC 2003
L19 4 S L18
L20 1 S L10 AND ELECTROLY?
L21 1 S L10 AND .OMEGA.

FILE 'CASREACT' ENTERED AT 11:10:43 ON 15 DEC 2003

FILE 'CASREACT' ENTERED AT 11:12:21 ON 15 DEC 2003

FILE 'BEILSTEIN' ENTERED AT 11:15:15 ON 15 DEC 2003
L22 STRUCTURE UPLOADED
L23 46066 S 2/P
L24 2866 S L23 AND F/ELS
L25 1 S L22 SUB=L24 SAM
L26 37 S L22 FULL SUB=L24
L27 31 S L26 NOT (N/ELS OR O/ELS)
L28 30 S L27 NOT L25
L29 30 S L28 NOT PHENYL

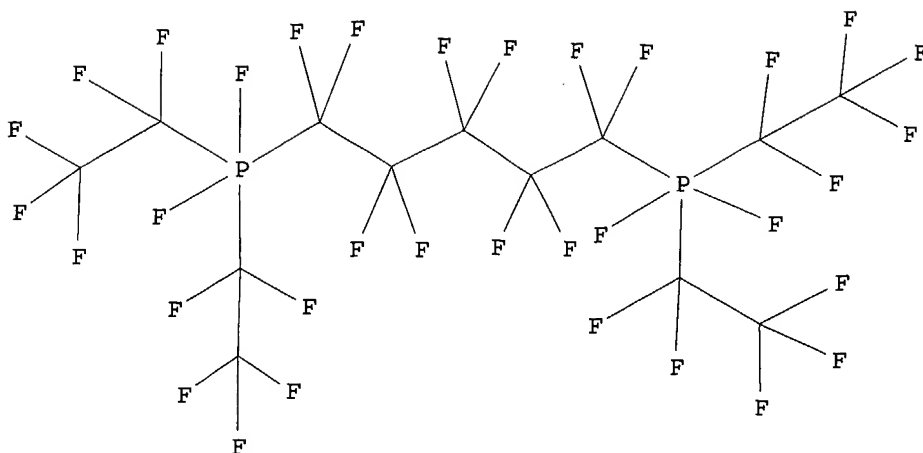
=> s l10
L30 20 L10

=> s l29 not l30
L31 13 L29 NOT L30

=> d ide

L31 ANSWER 1 OF 13 BEILSTEIN COPYRIGHT 2003 BEILSTEIN MDL on STN

| | |
|---------------------------|------------|
| Beilstein Records (BRN): | 8605815 |
| Molec. Formula (MF): | C13 F34 P2 |
| Molecular Weight (MW): | 864.04 |
| Lawson Number (LN): | 1543, 1158 |
| Compound Type (CTYPE): | acyclic |
| Constitution ID (CONSID): | 7292920 |
| Tautomer ID (TAUTID): | 8094695 |
| Entry Date (DED): | 2000/10/24 |
| Update Date (DUPD): | 2000/10/24 |



Field Availability:

| Code | Name | Occurrence |
|--------|----------------------------|------------|
| BRN | Beilstein Records | 1 |
| CN | Chemical Name | 1 |
| AUN | Autonomname | 1 |
| MF | Molecular Formula | 1 |
| FW | Formular Weight | 1 |
| FBRN | Fragment BRN | 2 |
| LN | Lawson Number | 2 |
| FS | File Segment | 1 |
| CTYPE | Compound Type | 1 |
| CONSID | Constitution ID | 1 |
| TAUTID | Tautomer ID | 1 |
| ED | Entry Date | 1 |
| UPD | Update Date | 1 |
| NMR | Nuclear Magnetic Resonance | 3 |

This substance also occurs in Reaction Documents:

| Code | Name | Occurrence |
|-------|-------------------------------|------------|
| RX | Reaction Documents | 1 |
| RXPRO | Substance is Reaction Product | 1 |

=> d rxpro

L31 ANSWER 1 OF 13 BEILSTEIN COPYRIGHT 2003 BEILSTEIN MDL on STN

Reaction:

RX
 Reaction ID (.ID): 8553814
 Reactant BRN (.RBRN): 1746237
 Reactant (.RCT): 1,5-bis-diethylphosphino-pentane
 Product BRN (.PBRN): 8605815
 Product (.PRO): C13F34P2
 No. of React. Details (.NVAR): 1

Reaction Details:

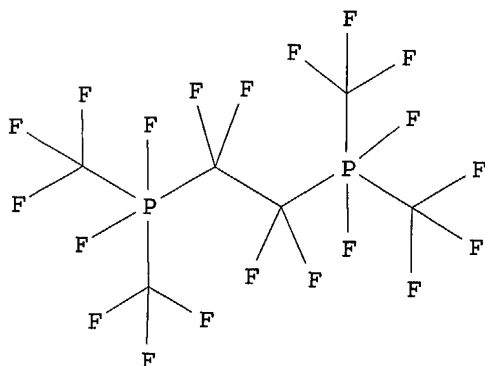
RX
 Reaction RID (.RID): 8553814.1

Reaction Classification (.CL): Preparation
 Reagent (.RGT): F2
 Solvent (.SOL): various solvent(s)
 Time (.TIM): 12 hour(s)
 Temperature (.T): -60 Cel
 Reaction Type (.TYP): Fluorination
 Reference(s):
 1. Kampa, J. J.; Nail, J. W.; Lagow, R. J., J. Fluorine Chem., CODEN:
 JFLCAR, 102(1-2), <2000>, 333 - 336; BABS-6244086

=> d ide 2

L31 ANSWER 2 OF 13 BEILSTEIN COPYRIGHT 2003 BEILSTEIN MDL on STN

Beilstein Records (BRN): 8594068
 Molec. Formula (MF): C6 F20 P2
 Molecular Weight (MW): 513.98
 Lawson Number (LN): 1763, 1518
 Compound Type (CTYPE): acyclic
 Constitution ID (CONSID): 7283815
 Tautomer ID (TAUTID): 8072949
 Entry Date (DED): 2000/10/24
 Update Date (DUPD): 2000/10/24



Field Availability:

| Code | Name | Occurrence |
|--------|----------------------------|------------|
| BRN | Beilstein Records | 1 |
| CN | Chemical Name | 1 |
| AUN | Autonomname | 1 |
| MF | Molecular Formula | 1 |
| FW | Formular Weight | 1 |
| LN | Lawson Number | 2 |
| FS | File Segment | 1 |
| CTYPE | Compound Type | 1 |
| CONSID | Constitution ID | 1 |
| TAUTID | Tautomer ID | 1 |
| ED | Entry Date | 1 |
| UPD | Update Date | 1 |
| NMR | Nuclear Magnetic Resonance | 3 |

This substance also occurs in Reaction Documents:

| Code | Name | Occurrence |
|-------|-------------------------------|------------|
| RX | Reaction Documents | 1 |
| RXPRO | Substance is Reaction Product | 1 |

=>

=> d frxpro

L31 ANSWER 1 OF 13 BEILSTEIN COPYRIGHT 2003 BEILSTEIN MDL on STN

Reaction:

RX

Reaction ID (.ID): 8553814
 Reactant BRN (.RBRN): 1746237
 Reactant (.RCT): 1,5-bis-diethylphosphino-pentane
 Product BRN (.PBRN): 8605815
 Product (.PRO): C13F34P2
 No. of React. Details (.NVAR): 1

Reaction Details:

RX

Reaction RID (.RID): 8553814.1
 Reaction Classification (.CL): Preparation
 Reagent (.RGT): F2
 Solvent (.SOL): various solvent(s)
 Time (.TIM): 12 hour(s)
 Temperature (.T): -60 Cel
 Reaction Type (.TYP): Fluorination
 Reference(s):
 1. Kampa, J. J.; Nail, J. W.; Lagow, R. J., J.Fluorine Chem., CODEN: JFLCAR, 102(1-2), <2000>, 333 - 336; BABS-6244086

=> d frxpro 2

L31 ANSWER 2 OF 13 BEILSTEIN COPYRIGHT 2003 BEILSTEIN MDL on STN

Reaction:

RX

Reaction ID (.ID): 8553194
 Reactant BRN (.RBRN): 1732994
 Reactant (.RCT): 1,2-bis-dimethylphosphino-ethane
 Product BRN (.PBRN): 8594068
 Product (.PRO): C6F20P2
 No. of React. Details (.NVAR): 1

Reaction Details:

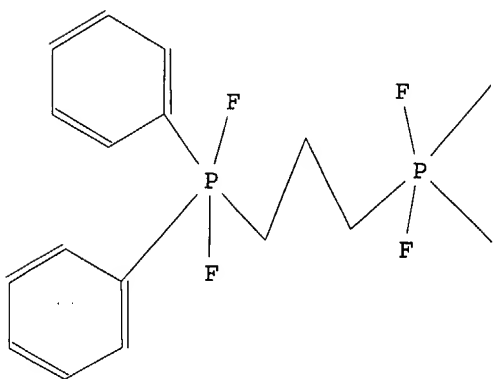
RX

Reaction RID (.RID): 8553194.1
 Reaction Classification (.CL): Preparation
 Reagent (.RGT): F2
 Solvent (.SOL): various solvent(s)
 Time (.TIM): 12 hour(s)
 Temperature (.T): -60 Cel
 Reaction Type (.TYP): Fluorination
 Reference(s):
 1. Kampa, J. J.; Nail, J. W.; Lagow, R. J., J.Fluorine Chem., CODEN: JFLCAR, 102(1-2), <2000>, 333 - 336; BABS-6244086

=> d ide 13

L31 ANSWER 13 OF 13 BEILSTEIN COPYRIGHT 2003 BEILSTEIN MDL on STN

Beilstein Records (BRN): 2766916
Molec. Formula (MF): C17 H22 F4 P2
Molecular Weight (MW): 364.30
Lawson Number (LN): 16731, 3763, 3761
Compound Type (CTYPE): isocyclic
Constitution ID (CONSID): 2504081
Tautomer ID (TAUTID): 2616441
Beilstein Citation (BSO): 5-16
Entry Date (DED): 1989/07/11
Update Date (DUPD): 1989/07/11



Field Availability:

| Code | Name | Occurrence |
|--------|----------------------------|------------|
| BRN | Beilstein Records | 1 |
| MF | Molecular Formula | 1 |
| FW | Formular Weight | 1 |
| LN | Lawson Number | 3 |
| CTYPE | Compound Type | 1 |
| CONSID | Constitution ID | 1 |
| TAUTID | Tautomer ID | 1 |
| BSO | Beilstein Citation | 1 |
| ED | Entry Date | 1 |
| UPD | Update Date | 1 |
| MP | Melting Point | 1 |
| NMR | Nuclear Magnetic Resonance | 1 |

This substance also occurs in Reaction Documents:

| Code | Name | Occurrence |
|-------|-------------------------------|------------|
| RX | Reaction Documents | 1 |
| RXPRO | Substance is Reaction Product | 1 |